CLASS 400, TYPEWRITING MACHINES

SECTION I - CLASS DEFINITION

This is the generic class for an apparatus wherein a user of the apparatus causes an intelligible character* to be imprinted on a record-medium* by a type-member* that is impressed on the record-medium, said type-member being selected from a plurality of different type-members, and the selected type-members being impressed serially to form a sequence of characters that record intelligible information.

This class includes a method of using the apparatus described above.

(1) Note. The definition as written above is intended to emphasize the major difference between this class (400) and the class of printing. The difference is that as a general rule in this class each character* is imprinted serially by a type-member* that is selected from an assortment of type-members, the assortment containing only one of each type-member to be impressed, and the selection being made in sequence to imprint one character after another to form a word, and one word after another to form the text to be read. In the printing class, on the other hand, a plurality of type-members are arranged to be printed simultaneously to form a print-line* or a page* or a plurality of pages of printed text.

(2) Note. The word "intelligible" in the definition of this class does not limit the character to a visible character. A character that is invisible to the human eye can be intelligible to a "scanner" that "reads", for example, infrared light emanations, and thus be intelligible within the definition stated above.

(3) Note. Explanatory note regarding placement of patents within the class. A typewriter includes many elements, often numbering in the hundreds and even thousands of elements. Because of this, many patents in the typewriter art include claims that recite elements of a typewriter that are named in a claim for the purpose of setting forth the environment of the inventive structure. In such patents, the mere naming of various elements in a claim will not necessarily be the basis of placing a patent having such a claim into the schedule as an original patent. Original placement will be based upon the inventive concept emphasized in a patent claim rather than on the basis of all the elements that are merely named in a claim.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

The relationship of this class (400) to classes which warrant specific mention is as follows:

Class 101, Printing, involves the imprinting on a record-medium* of a multitude of character symbols simultaneously to form a print-line* or a page* or a plurality of pages of printed text. The significant difference between this class (400) and Class 101 lies in the term "simultaneously". In Class 101 plurality of type-face* elements are assembled. If a plurality of occurrences of a particular character are to be printed, a corresponding number of type-faces representing that character are included in the assemblage. When the entire assemblage of type-faces is inked and impressed against a record-medium, all the type-faces will be imprinted simultaneously. In this class (400) only one type-face element is provided for each character to be imprinted, and the type-faces are impressed in sequence to form the text. Two exceptions should be noted. In a stenographic typewriter, the typist may select two or more characters to be imprinted to form a syllable of a word, and may then select two or more characters to form another syllable of a word. One or more of the characters selected for one syllable may be selected again to form another syllable, but only one type-face for each character to be imprinted is provided in the stenographic typewriter. In a logotype typewriter a plurality of type-face elements may be preassembled to form a word or symbol, but the logotype type-face is one of the type-face elements of the typewriter, and the logotype type-face element is selected as one of the type-face elements in the sequence of characters to be imprinted serially. Various subcombinations of elements are usable either in a Class 101 printing press or in a typewriter of this class (400). Among such subcombinations are a ribbon-feeding or ribbon-inking mechanism, a record-medium feeding mechanism, etc., but the placement of a patent to such subcombination will be governed by the environment of the machine.

Class 178, Telegraphy, includes in subclasses 4 and 23 disclosures of printing telegraph systems that are similar

in some aspects to a typewriter. In general, Class 178 involves a telegraphic system including one or more signal-sending units, one or more signal-receiving units, and electrical circuitry, the system being capable of (a) transmitting a signal over great distances, or (b) boosting or amplifying the signal, or (c) mixing signals that have been generated in a plurality of sending units, transmitting the mixed signals over a single line and unmixing the signals at a plurality of receiving units so that each receiver will transcribe only its own signal from the single line, or (d) selecting the receiving units that will be controlled by the sending units. Class 178 also provides, in various subclasses, for subcombinations including key-board*, key* element, type wheel, and other elements that are peculiar to printing telegraph systems. This class (400) as related to Class 178, involves a typewriter that is (a) directly coupled to a second typewriter by electrical or mechanical linkage over a short distance (e.g., "master-slave" relationship), or (b) coupled by way of a "storage" or "memory" circuit to itself or to a second typewriter (e.g., "input-output" relationship), or (c) controlled to modify the typing signals generated by a typist to create a text different from that which would be produced by the unmodified generated signals (e.g., by "justification" (see subclass 1). This class (400) will also accept subcombinational aspects of a telegraphic printer that embody typewriter subcombinations not provided for in Class 178. Examples of such subcombinations include: ribbon* feed, carriage* feed, record-medium feed, type-head* structure, key-board mechanism, type-bar* action, tabulator structure, etc.

Class 234, Selective Cutting (e.g., Punching), the relationship of this class (400) to Class 234 is fully set forth in the class definition of Class 234, in section V, paragraph E. Reference is made to the relationship between Class 234 and Class 400, Typewriting Machines, in that note.

Class 235, Registers, the relationship of this class (400) to Class 235 is set forth in the "SEARCH CLASS" 400, Typewriting Machines, that appears under the definition of Class 235, subclass 60.

Class 346, Recorders, provides for an ink* jet means for recording intelligence. This class (400) provides for a typewriter structure in which the usual type-face* element that impresses a character symbol against a record-medium is replaced by an ink jet for imprinting a character symbol on a record-medium. To be placed as an original into this class, a patent should clearly recite the typewriter structure that controls the ink jet to form characters successively.

Class 358, Facsimile and Static Presentation Processing, includes in subclasses 1.1-1.18 disclosures involving a data-processing system that generates a printout of the results produced by the processing system. The significant subject matter of such a system is proper for Class 358.

OTHER CLASSES INCLUDING MATERIAL HANDLING OR MATERIAL FEEDING

See References to Other Classes for subcombinations that may be included in a typewriter to feed a record-medium* or a ribbon* or other sheetlike or weblike material. For a patent to be placed as an original into this class (400) the claimed subject matter of such patent should be clearly related to a typewriter (e.g., be directed to one or more ink*-ribbon spools in a typewriter, sheet, or web feeding involving line-space* distances or format control in a typewriter, etc.).

SEARCH NOTES TO OTHER CLASSES INCLUDING SUBCOMBINATIONS USABLE IN A TYPEWRITER

See References to Other Classes for subcombinations that may be included in a typewriter for various purposes needed during the operation of a typewriter. For a patent to be placed as an original into this class (400) the claimed subject matter of such patent should be clearly related to a typewriter (e.g., be directed to a device for cleaning a type-face* of a typewriter, a bell for indicating the occurrence of the end of a print-line* in a typewriter, etc.).

SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

15, Brushing, Scrubbing, and General Cleaning, subclass 246 include an attachment for cleaning. (Other Classes Including Subcombinations Usable In A Typewriter)

40, Card, Picture, or Sign Exhibiting, subclass 341 for a copyholder that is not part of a typewriter, but which may be used in conjunction with a typewriter for advancing material that may be copied from during typing. (Class Including Material Handling Or Material Feeding)

74, Machine Element or Mechanism, appropriate subclasses for a linkage that is usable as an actuating mechanism of a typewriter. (Other

Classes Including Subcombinations Usable In A Typewriter)

108, Horizontally Supported Planar Surfaces, appropriate subclasses for a support for sheet or web material. (Class Including Material Handling Or Material Feeding)

116, Signals and Indicators, subclass 148 and 200 for an indicator or a bell. (Other Classes Including Subcombinations Usable In A Typewriter)

118, Coating Apparatus, subclass 200 for coating apparatus applicable to a typewriter to re-ink a ribbon*. (Other Classes Including Subcombinations Usable In A Typewriter)

221, Article Dispensing, appropriate subclasses and especially subclass 33 for dispensing of a sheetlike article. (Class Including Material Handling Or Material Feeding)

222, Dispensing, appropriate subclasses for dispensing of liquid. (Other Classes Including Subcombinations Usable In A Typewriter)

226, Advancing Material of Indeterminate Length, appropriate subclasses for feeding of web material. (Class Including Material Handling Or Material Feeding)

242, Winding, Tensioning, or Guiding appropriate subclasses for the winding of web material onto a roll or the unwinding of web material from a roll. (Class Including Material Handling Or Material Feeding)

248, Supports, subclass 442.2 for a support for a copyholder. (Class Including Material Handling Or Material Feeding)

271, Sheet Feeding or Delivering, subclass 8 for appropriate sheet-feeding structure. (Class Including Material Handling Or Material Feeding)

276, Typesetting, subclass 28 for justification in a type setting machine. (Other Classes Including Subcombinations Usable In A Typewriter)

281, Books, Strips, and Leaves, subclass 45 for a book or leaf holder. (Class Including Material Handling Or Material Feeding)

359, Optics: Systems (Including Communication) and Elements, subclasses 838+ for a reflector usable in a typewriter. (Other Classes Including Subcombinations Usable In A Typewriter)

384, Bearings, appropriate subclasses for guide structure usable in a typewriter. (Other Classes Including Subcombinations Usable In A Typewriter)

434, Education and Demonstration, subclass 176, 202, and 227 for a key-board* for teaching or learning purposes. (Other Classes Including Subcombinations Usable In A Typewriter)

462, Books, Strips, and Leaves for Manifolding, appropriate subclasses and especially subclass 73 for the holding and formation of books, strips and leaves for manifolding. (Class Including Material Handling Or Material Feeding)

493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, subclass 411, 413, 430, 433, and 451 for the folding of zigzag or fan folded material. (Class Including Material Handling Or Material Feeding)

492, Roll or Roller, for a roll, per se, not elsewhere provided for, especially subclasses 49+ for concentric layered annular roll structure and subclasses 57+ for single annular member roll structure. (Other Classes Including Subcombinations Usable In A Typewriter)

SECTION IV - GLOSSARY

In the typewriter art certain words and terms have acquired distinct and specialized meanings. The following Glossary will define and explain the terms so as to facilitate understanding of, and simplify, the definitions of the subclasses to follow. Throughout the class definition and the subclass definitions, an asterisk (*) following a word or term will indicate that it has been defined in this section. For a term that is defined in this Glossary and used in the title or definition of a subclass, the individual words of the term are separated by a hyphen (-) to indicate that the term is alphabetized in this Glossary as if it were a single word.

APRON

A member closely adjacent to the cylindrical platen* of a typewriter that serves to guide a record-medium* into close contact with the platen. It is usually a thin sheet of relatively rigid material having a length dimension approximating the length of the platen and is arcuately shaped to approximately the radius of the platen whereby it conforms to part of the periphery of the platen. It is usually located underneath the platen and closely adjacent thereto so that the record-medium is guided between the apron and the platen to be partially wrapped around the platen. The apron may also serve as a mounting for feed-rollers* that cooperate with the platen to move the record-medium in a line-space* direction.

AUXILIARY-RECORD-PROGRAM

A set of instructions used in a programmed-control-system* of a typewriter, which set of instructions may be readily removed from the typewriter so that another set of instructions may be inserted into the typewriter to perform a different or a modified sequence of typing functions.

CARRIAGE

A mechanism for supporting a record-medium* or for supporting a type-head-carrier*, which mechanism is provided with means to effect relative movement between the record-medium and a type-head-carrier that is at the print-point*, the movement occurring along a line that is parallel to the print-line*. A "carriage-feed" means effects carriage movement in the direction that causes character* symbols to be imprinted in succession, thus "carriage feed" also effects character-space* and word-space* distances. In most typewriters used for typing a European language said direction is from left to right, but there are some typewriters capable of imprinting successive characters from right to left even though the words will be read from left to right, and there are other typewriters intended to imprint successive characters from right to left because the words will be read from right to left. In any event, the carriage-feed direction is always the direction that causes characters to be imprinted in succession. In some typewriters the record-medium is held to a platen that is mounted on a carriage, and the "platen carriage" (together with the record-medium) is moved relative to the main frame of the typewriter. Each successively actuated type-member* is impressed at a print-point that is stationary relative to the main frame. The platen-carriage (e.g., right to left) is opposite to the direction in which successive characters are imprinted and read (e.g., left to right). (The directions mentioned apply except as noted above.) In some typewriters the record-medium is held to a platen that does not move during the imprinting of a print-line. The type-member is on a type-head* that is on a type-head-carrier that is mounted on a carriage, and the type-head carriage is moved relative to the main frame of the typewriter. Each successively actuated type-member is impressed at a print-point that is moved relative to the main frame. The "type-head carriage" movement (e.g., left to right) is in the direction in which successive characters are imprinted and read (e.g., left to right). In both forms of typewriter noted above, the term carriage feed is applied to movement of the carriage in the direction that effects imprinting of successive characters and words*. Thus, for a platen-carriage typewriter, carriage feed is usually from right to left (but note the exception above), whereas for a type-head-carriage typewriter, carriage feed is usually from left to right. Either typewriter is also capable of carriage reversal, which is in the direction opposite to carriage feed, and is used for "carriage return" (e.g., to start a new print-line) or is used for carriage backspace (e.g., to move a carriage a distance equivalent of one or more character-spaces in a reverse direction).

CARRIAGE-RACK

A bar having teeth or notches along one of its sides, which bar is affixed to a carriage*, and which teeth or notches cooperate with a pawl* or a pinion gear to enable or cause movement of the bar and the carriage to which it is affixed. There may be provision for adjustment of the bar relative to the carriage, but the adjustment is usually made at the time of manufacture of the typewriter, or may be made subsequently during a period of time when the typewriter is not being used for typing. When a carriage-rack cooperates with a pawl, it acts as a ratchet*, and for a discussion of how a pawl and ratchet operates as a carriage-feed mechanism, see the definition of pawl in this Glossary,

CASE-SHIFT

Case-shift is the relative movement between a record-medium* and a type-face* or a type-die* that is at the print-point*, which movement is effected by pressing a case-shift key* concurrently with the pressing of a character* key. In most typewriters, selection of which character is to be imprinted in sequence is made by selection of the character keys. In a typewriter with a case-shift, a choice of upper-case* (i.e., "CAPITAL" letter) or lower-case* (i.e., "small" letter) form of the selected letter is possible by concurrently pressing or not pressing the case-shift key. Analogous choice of other characters that appear on the various character keys is also possible with the case-shift key. In some typewriters case-shift is effected by moving into one of two positions (or in other typewriters one of three positions) any of (a) a type-bar-segment*, or (b) a platen, or (c) a type-head* that carries at least two fixedly related type-face elements; in all of these the movement occurs in a plane substantially parallel to the plane occupied by the type-face at the print-point. In some typewriters a type-head is on a type-head-carrier* and includes a type-set-assemblage* thereon, and in such typewriters case-shift is effected by moving the type-head so that the chosen type-face (i.e., upper-case or lower-case) will be impacted against the record-medium. In some typewriters, case-shift may

also be used to imprint a character in a different font* or a character in a different language for specialized uses.

CHARACTER

A single symbol imprinted on a record-medium* by a type-member* and intended to be read by the human eye, or intended to be "read" by a mechanical or electrical scanner, for the purpose of conveying intelligence to the reader (i.e., human reader or mechanical "reader"). It forms one of the elements needed to form a word*. In most typewriters a character is formed by impressing a single type-member against a record-medium, usually via an inking means. However, a single character may also be formed by impressing a plurality of different type-members either simultaneously or successively in the same zone or area of the record-medium. A character may be (a) one of the letters in an alphabet, either upper-case* (i.e., "CAPITAL" letter), or lower-case* (i.e., "small" letter), or (b) one of the numeral digits (i.e., "0" through "9"), or (c) a punctuation mark [e.g., comma (,), colon (:), etc.], or (d) one of a variety of signs and symbols incorporated into a typewriter intended for general usage [e.g., dollar sign ($), ampersand symbol (&), etc.]. The number or variety of characters that a particular typewriter may imprint is limited only by the size of the typewriter and the area allotted to the key-board* and the type-members of that typewriter.

CHARACTER-SPACE

Character-space is the distance that the carriage* or the record-medium* is moved to effect the separation of one imprinted character* from a subsequently imprinted character of the same word*. In most alphabets the width of one character (i.e., the distance that it extends along the print-line*) differs from the width of another character. In many typewriters the character-space distances are in equal increments of carriage feed. Due to the fact that successively imprinted characters have different widths, the spaces between the successive characters are unequal. To compensate for different widths, some typewriters are provided with mechanism to vary the carriage feed. This mechanism causes the carriage feed to be proportional to the width of the character imprinted by a type-face*. The unequal increments of carriage feed produced by this mechanism results in equal spaces between successively imprinted characters, thereby improving the uniformity and appearance of the typing.

COLLATING-TABLE

A platform or support used while a plurality of sheets or webs are arranged or assembled according to an orderly system. The sheets or webs may include record-medium* pieces or transfer-medium* pieces in any desired order or sequence and the assemblage of pieces comprises that which is to be typed on. The term "collating" as used in this class (400) is used to describe a simple structure that is used for collating, usually manually. It differs somewhat from the term collating as applied to a machine that accomplishes a similar result of arranging or assembling plural sheets or webs.

CONDENSED-BILLING

A term used in the typewriter industry for the production of a condensed or summary record of a succession of typed documents (e.g., bills or numerical data). The operation includes the typing of plural copies (e.g., an "original copy" and one or more "carbon copies", or duplicate "original copies") simultaneously on plural record-medium* pieces. At least one of the pieces is intended to be complete as to heading, address, and other information that is to be sent to one user. At least another piece is to be retained by the typist, and is not required to be complete; that is, it may omit much of the information, but may be a composite or summary or condensed record of the information that is to be sent. The record-medium on which the condensed-billing is typed is therefore moved in line-space* distances that differ from the line-space distances of the complete record medium.

DENOMINATIONAL-STOP

A component of the carriage* mechanism that causes stopping of the carriage in any of selected denominational column positions. In a denominational column a sequence of numerical digits is imprinted on one print-line* and further sequences of numeral digits are imprinted in successive print-lines, one print-line below the previous print-line. The distinguishing characteristic of a denominational column is that the decimal point of successive print-lines of numeral digits is in vertical array, or in the instance where the decimal point of successive numbers is not actually imprinted, the "units" digit of the successive numbers is in vertical array. Thus the position where the carriage will be stopped to imprint each of a succession of numbers will depend on whether the first digit of a sequence of numeral digits is to be a "hundreds" digit, or a "tens" digit, etc. A denominational-stop is usually a "counter stop" (see the discussion under the definition of tab-rack* in this Glossary).

FEED-ROLLER

A rotatable element having a cylindrical or cylindroidal periphery that contacts a surface of a sheet or web of record-medium* material or transfer-medium* material and enables or causes movement of the sheet or web. Usually a feed-roller cooperates with a second element and the sheet or web lies between the feed-roller and the second element, the opposite surfaces of the sheet or web being closely adjacent to the corresponding surfaces of the feed-roller and the second element and in nonsliding contact therewith. When the second element is a platen* the feed-roller serves as a "pressure roller" to urge the sheet or web toward the platen, and the platen is rotated to cause feed movement of the sheet or web. When the second element is another feed-roller either or both of the feed-rollers may be driven for rotation, the rollers being rotated in opposite rotational directions to cause feed movement, and the two feed-rollers cooperate to form a feed-roller couple.

FONT

A complete assortment of type in the same style and size to imprint character* symbols having a substantially uniform appearance. Examples of font include elite and pica (both refer to size of type), italic (i.e., having slope to the right), and cursive (i.e., having flowing lines connecting individual characters in a style resembling handwriting), these being only a few of the fonts used in various typewriters.

FUNCTION

In general, an operation performed on or by a typewriter during use of the typewriter for typing. As used by the typewriter industry, however, the term "function" is limited to an operation other than (a) impressing a type-member* against a record-medium* to imprint a character* (which thereby concurrently effects a character-space*), or (b) effecting a word-space*. Examples of typewriter operations considered by the industry to be functions are: backspace, carriage return, case-shift*, tabular stopping, line-space* (i.e., for record-medium feed), ribbon feed, and similar typewriter movements.

INK

A substance (usually fluid, may be viscous or solid) that is applied to the surface of a record-medium* in the configuration of a typed character* symbol to make the character visible to a reader of the typed text. An important property of ink is its ability to form a "permanent" symbol, that is, a symbol that is not easily erased (or erased only with great difficulty), and it is this property that aids the production of an original copy of the typed text. (See the definition of transfer-medium* in this Glossary, section III, for a discussion of the difference between original copy and carbon copy.) A fluid ink may be applied directly to a type-face*, from which type-face the ink is directly imprinted onto a record-medium. A viscous ink may be applied to the record-medium via an ink-impregnated ribbon*, and the ink therein will "flow" by capillary action from unused portions of the ribbon into the used portions of the ribbon. A solid ink may be applied via a so-called "carbon-ink" ribbon, which is often a single-use or one-use ribbon because all or most of the coating of the ribbon is imprinted onto the record-medium when a type-face is impacted thereagainst. A "hecto-graphic" ink is a particular form of ink that is soluble and is used to form a "master" plate used in a "spirit duplicating" copying process.

KEY

An element on a typewriter, located on a key-board*, which element is pressed to cause either (a) the actuation of a type-member* to imprint a character* that corresponds to the selected key, or (b) the actuation of a selected function* of the typewriter. In a manual typewriter a key is usually pressed by a finger of a user, and the movement of the selected key is transmitted via a system of levers and links into movement of a corresponding type-member actuator or function actuator. In some typewriters and external power source assists the actuation. In other typewriters keys are pressed successively in response to signals to the typewriter by a human or mechanical operator. The key referred to in (a) above (i.e., a character key) also causes a character-space* movement of the carriage* as well as actuation of the type-member.

KEY-BOARD

That portion of a typewriter which is located so as to face and be adjacent to the user of a typewriter, and containing the key* elements that are to be pressed in succession to produce a text that is being typed, or pressed as needed to actuate a particular function* of the typewriter.

LINE-SPACE

The distance caused by relative movement between a record-medium* and a print-point* of a type-member* against the record-medium, which movement effects separation of one print-line* of typed text from a subsequently imprinted line of typed text on the same page*

of text. It is effected by incremental relative movement that occurs in a direction perpendicular to the direction in which a print-line is formed. In most typewriters the type- member is impressed in substantially the same area of the typewriter and the record-medium is effectively held to a platen* which moves incrementally between successive print-lines, but in some typewriters the type-member and its actuating mechanism moves in a corresponding direction in incremental movements between successive print-lines. Thus, in most typewriters, line-space movement is a specific form of record-medium movement, but line-space movement is a determinate, incremental movement in selected units of distance or in multiples or fractions thereof. If a unit of distance is considered as one line-space, the multiples would include two or three line-spaces and the fractions would include one-half, one and one-half, or two and one-half line-spaces, all these distances being selected by the user of a typewriter according to the needs of the user. The most significant aspect of line-space movement is that it is related to a preceding or succeeding print-line on the record-medium as distinguished from record-medium movement which is not related to a print-line, but rather is an indeterminate movement.

LOWER-CASE

A "small" letter, similar in appearance to this text, as opposed to upper-case*. The names lower-case and upper-case are derived from the printing art during the period when type-faces* were handpicked and handset, the type being picked from a tray in which the capital or upper-case type were held in compartments physically located above the compartments for the small or lower-case type.

MAGNETIC

A property of nature resulting in attraction or orientation of a ferrous material relative to a body having such a property. Examples of such a body include the earth, a loadstone, and a coil of wire in an electrical circuit, all of which have, or can generate, a magnetic field. Magnetism is used to produce a force, as in a magnetic solenoid, or to transmit a force, as in a magnetic clutch. Magnetic also describes a property inherent in an auxiliary-record-program* containing ferrous particles capable of being oriented or reoriented relative to the auxiliary record, the orientation of the particles being sensed to effect a typing operation in response to the sensing.

MARGIN

The distance from an edge of the record-medium* to the closest character* symbol of a print-line* to that edge. The term is most usually used when a plurality of print-lines are typed and the first imprinted characters of each of the print-lines are all equally spaced from the edge. When typing any language that is read from left to right, the left margin is the distance from the left edge to these first characters and will usually be parallel to that edge, whereas the right margin is the distance of the right edge to the last characters of the successive print-lines. However, because the number of characters in a print-line is subject to chance, the right margin will usually not be equally spaced from the right edge unless "justification" is performed. For a discussion of justification, see (1) Note to the definition of subclass 1 below.

MARGIN-STOP

A member that is used to stop the movement of a carriage* when the carriage reaches the margin* of the record-medium*. The margin-stop of a platen* carriage (see the definition of carriage in this Glossary) is usually mounted on the platen carriage for movement therewith and cooperates with a stop fixed to the frame of the typewriter, whereas the margin-stop of a "typehead-carriage" (see the definition of carriage in this Glossary) is usually mounted on the frame of the typewriter and cooperates with a stop mounted on the type-head carriage for movement therewith, but in either typewriter one margin-stop may be set for various margin distances for the left margin and another margin-stop may be set for various margin distances for the right margin.

PAGE

A unit of printed text corresponding to that which would appear on one leaf or sheet of a book, newspaper, or document. It usually refers to a sheet of text, but in the instance where text is imprinted on a web (i.e., of indeterminate-length material), it refers to that length of web which will subsequently be cut to form a sheet of determinate length.

PAPER-FINGER

A member that is in substantial contact with a platen* or with a record-medium* that is supported or backed by the platen, which member thereby ensures contact of a record-medium with the platen. It is usually an elongated element, and in those typewriters wherein the platen is cylindrical the paper-finger is arcuate and conforms to the periphery of the platen for a substantial

length of the paper-finger in order to hold the record-medium to the platen.

PAWL

A moveable member having a protruding portion that engages a notch between two adjacent teeth of a ratchet* to cause or enable intermittent movement of the ratchet. The movement of a pawl is usually two-way, that is, oscillation or reciprocation, and the protruding portion of the pawl engages a notch between two adjacent teeth of the ratchet and moves relative to the ratchet over or around one of the teeth to engage a notch between the next two adjacent teeth. In one form of pawl and ratchet mechanism, the pawl is driven while engaged in a notch between the teeth to thereby drive the ratchet, and then is retracted to reengage a notch between the next teeth. In another form of pawl and ratchet mechanism, the ratchet is urged to be moved, but its movement is restrained by the pawl; movement of the pawl momentarily releases the ratchet for movement of the ratchet, and return of the pawl to a notch between the next teeth again restrains the ratchet. In either mechanism a plurality of pawls, or a pawl with a plurality of protruding portions may be used alternately.

PITCH

The term "pitch" in the typewriter art derives from its usage in mechanics or machinery, where it refers to the distance between two things in series, e.g., two adjacent threads of a screw or two adjacent teeth of a toothed wheel or rack, etc. As used in the typewriter art, "pitch" refers to a line-space* distance or to a character-space* distance, as such distances are caused by mechanical elements in the typewriter. Some typewriters are capable of imprinting different character* sizes due to easily replaceable type-head* elements. In order to maintain a proper or pleasing appearance to the type text, it is necessary, when such a change in character size is made, also to change the character-space and line-space distances in proper proportion to that of the character size. Such a typewriter is therefore also capable of having the pitch changed when character size is changed.

PLATEN

An element that serves as a support or backing for a record-medium* while a type-member* is impressed against the record-medium and thereby prevents movement of the record-medium during impression; or an element that serves as a support or backing for a record-medium and also moves the record-medium toward the type-member for impression of the type-member against the record-medium. Although from the derivation of the word "platen" it should comprise a flat or planar plate, in the typewriter art it is not so limited. In most typewriters the platen is a cylinder having a generally smooth surface, and the record-medium is partially wrapped around the periphery of the cylinder. In use the cylinder is rotated until the location of the record-medium corresponds to the desired location of the print-line* to be imprinted thereon, and after the desired line has been imprinted, the cylinder is rotated an increment corresponding to a desired line-space*, thereby moving the record-medium. Some typewriters do include a flat platen, which may be a plate having dimensions corresponding to the record-medium (i.e., sheet), or may be a bar platen having dimensions corresponding to the height of a character* and the length of a print-line, or may be an anvil having dimensions corresponding to the height and width of a single character.

PRINT-LINE

A single row of imprinted, spaced character* symbols and word* groups that is part of the text being typed. It is usually a straight row, but particular characters of the line may be offset therefrom, as, for example, to imprint subscript (i.e., slightly below the line) or superscript (i.e., slightly above the line), or to imprint a mathematical or chemical formula without negating its characteristics as a line. It is usually formed and read across a page, either from left to right as in European languages, or from right to left, as in Semitic languages, but may also be formed and read parallel to one of the side margins* of a page* (i.e., "up" or "down"), as in some Oriental languages.

PRINT-POINT

Print-point is the typewriter industry term for the area or spot on the record-medium* that a type-member* is impressed against to imprint a character* on the record-medium. The print-point may be fixed or movable relative to a typewriter main frame as discussed in the definition of carriage* in this Glossary.

PROGRAMMED-CONTROL-SYSTEM

Means for regulating the operation of a typewriter to perform a predetermined sequence of operations for typing, which means include a set of instructions which may be replaced or modified at will, to which instructions the typewriter mechanism responds by performing the sequence of operations. The instructions may be in the form of a tangible article such as a tape or card or disc with visible or invisible indicia thereon, or may be

in the form of an intangible "computer program" including a "memory" and related circuitry, but in any event, must be related to the operation of a typewriter to be considered for this class.

RATCHET

A movable member having teeth thereon and at least one notch between the teeth, which notch is engaged by a protruding portion of a pawl* to cause or enable intermittent movement of the ratchet. The manner in which a pawl and ratchet mechanism is used in a typewriter is discussed under the definition of pawl in this Glossary, section III. Ratchet teeth may be part of a "ratchet wheel" or of a "ratchet rack", and the action of the pawl is similar in both instances. However, since a ratchet wheel is circular, its motion will be a one-way rotational intermittent motion; and since a ratchet rack is linear, its motion will be a one-way rectilinear intermittent motion.

RECORD-MEDIUM

A piece of material, usually paper but not limited to paper, on which material is recorded an imprint of a type-member* that is impressed against the material to form a character* to be read. The material may be a relatively thin "sheet" having a determinate width and a determinate length, or may be a "web" having a determinate width and an indeterminate length. The recording is usually by way of an ink* that coats the material in the form of a line representing a character; but other kinds of recording may be done, as, for example, embossing, which deforms the surface of the material to raise or lower the surface into a line representing the character, or perforating, which punches a plurality of holes in the material that taken together form a representation of a character.

RIBBON

A piece of elongated and relatively thin transfer-medium* material impregnated with, or carrying, ink* that is to be applied to a record-medium*, which material is interposed between the record-medium and a type-face* that is at the print-point*. When the type-face is impressed against the record-medium (with the ribbon therebetween) a portion of the ink on the ribbon will be transferred to the record-medium to form a readable character* symbol corresponding to the symbol on the type-face that was impressed against the record-medium. Although in most typewriters the ribbon is an elongated relatively narrow strip of material, these dimensions are not critical in its usage as a ribbon. (For example, a ribbon may be narrow and sufficiently short to be held in the hand of a typist while being temporarily positioned adjacent to the print-point, or a ribbon may be elongated and as wide as the record-medium to be typed on.) What is critical in its usage as a ribbon for making an original copy is (a) its location directly between the record-medium and the type-face that is at the print-point, and (b) the use of a "permanent" or not easily erasable ink; the combination forms an original copy of the typed text, in contrast to a carbon copy. (See the definitions of transfer-medium and ink in this Glossary for a discussion of carbon copy). Among the various forms of ribbon used in a typewriter are: (a) a fabric ribbon coated or impregnated with "permanent" ink, the ribbon being reusable many times or until the ink therein is depleted, and producing an original copy; (b) a carbon-ink ribbon coated with permanent ink, the ribbon being usually a single-use ribbon due to the operation wherein all or most of the coating is deposited on the record-medium during the impact of a type-face thereagainst, and producing an original copy (see the definition of transfer-medium in this Glossary, for a discussion of the difference between the permanent ink used in a carbon-ink ribbon, and the carbon coating of a "carbon-paper" transfer-medium); (c) a "hectographic" ribbon that uses a soluble ink and produces a "master" plate subsequently used in a spirit duplicating copy process; (d) a carbon-paper ribbon coated with a substance containing carbon or other pigment to produce a carbon copy that is easily erasable; (e) a "correction" ribbon that is used to correct an error in typing as discussed in the definition of subclass 697 below. It should be noted that in early typewriter technology the term "ribbon" usually referred only to a fabric ribbon mentioned above; therefore, unless a disclosure particularly describes a ribbon by an intended function or specific coating, it should be assumed that a fabric ribbon is disclosed.

SPACE-BAR

An element on a typewriter, located on a keyboard*, which element is pressed to cause a carriage-feed movement of the carriage* without an imprint of a character*, thereby to separate one word* from another word on a print-line*.

TAB

A tab is an abbreviated form of the term "tabular", which term refers to a columnar arrangement of character* symbols on a page* of text. A "column" of text is formed by imprinting a particular symbol on one print-line* and subsequently imprinting the same or another

particular symbol on another print-line directly below the first print-line (i.e., equally spaced from one of the side edges of the record-medium*), and repeating the typing until a plurality of print-lines have been formed, all of which are in vertical array. The particular symbol may be the first letter of the first word* in each of the successively imprinted print-lines, and two or more columns are usually arranged in such a "column-set" arrangement, each of the columns being arrayed at a preset distance from an edge of the record-medium. The particular symbol may be the decimal point or the "units" digit of a set of numeral digits representing a number; this arrangement is termed "denominational". The terms "column" and "tabular" are also discussed in (1) Note and (2) Note to subclass 284, the term "denominational" is also discussed in (1) Note to subclass 285, and the term column set is discussed in (3) Note to subclass 284 and defined in subclass 285.1. It should also be noted that, in some disclosures, the term "tab" has been used as an abbreviation of an element which is better known as a "tab-stop" element and is discussed in this Glossary under tab-rack*.

TAB-RACK

A component of the carriage* mechanism that causes stopping of the carriage in any of selected tabular (see tab* in this Glossary) positions. A tab-rack is an elongated member extending parallel to the direction of carriage movement and having a length substantially the same as the extent of carriage movement. On the tab-rack a plurality of "tab-stop" elements are mounted, each of said elements being movable transversely of the length of the tab-rack form a "clear" position at which the element is passive to a "set" position at which the element is able to cooperate with a "counter-stop" element. In operation, relative movement between the tab-rack and the counter stop is effected in the lengthwise direction of the tab-rack until a set tab stop abuts against the counter stop. Usually the tab-rack is connected to the carriage and its tab stop abuts a stationary counter stop, thereby stopping the carriage. The same result may be achieved by mounting the counter stop on the carriage and abutting the counter stop against a set tab stop on a stationary tab-rack, thereby stopping the carriage. A plurality of counter stops may be provided, one of which counter stops may be set to stop the carriage in a preset column or denominational position. A typewriter capable of tabular operation is provided with at least three key* elements for regulating the operation. One of the keys, labelled "set" (or a variant thereof) is depressed by the typist to move a selected tab-stop element from its passive position to its set position on the tab-rack. Another key, labelled "tab" (or a variant thereof), or unlabeled but having a distinctive shape, is depressed by the typist to concurrently (a) release the carriage from its normal carriage-feed mechanism to enable unrestrained movement of the carriage, and (b) set a counter stop into a position where it will abut against the set tab stop when the counter stop and tab stop engage one another, whereby the movement of the carriage will be stopped in the tabular position. A third key, labelled "clear" (or a variant thereof), is depressed by the typist to move any of the previously set tab stops back to its passive position on the type-rack.

TOGGLE-LINKAGE

An assemblage of at least two links, pitmans, bars, or struts and at least three pivots, an end of one link being connected to an end of the other link by a pivot that is common to both links. Each of the links also has a pivot at the end remote from the common pivot, which common or intermediate pivot is movable from a first (or "broken") position at which the common pivot is not in line with the other two pivots to a second (or "straightened") position at which the common pivot is substantially in line with the other two pivots, or which common pivot is movable from said second position to said first position. Such movement is accomplished by a force applied to the common pivot in a direction approximately at right angles to either link, thereby moving the remote pivots relatively away from each other (i.e., when the common pivot moves to the second position) or relatively toward each other (i.e., when the common pivot moves to the first position).

TRANSFER-MEDIUM

A piece of material, relatively thin as compared to its other dimensions, and flexible so as to conform to various configurations as required in a typewriter, which material is impregnated or coated on one or both of its opposite surfaces with a preparation of ink* or gelatin or other substance-containing carbon or other pigment that is capable of being transplaced from a surface of said material onto a surface of an adjacent record-medium*. Among the various forms of transfer-medium used in a typewriter are: (a) a "permanent" ink transfer-medium in the form of an elongated, narrow ribbon*, a wide ribbon, a disc, etc., all of which have the property that the character* symbol imprinted with the use of this transfer-medium is not easily erased, thereby producing an "original copy" text; (b) a "carbon-paper" transfer-medium, so called because one of its surfaces is coated with a substance containing carbon or other pigment having the property that the character imprinted with this transfer-medium is easily erased, thereby producing

a "carbon copy" text; (c) a "hectos:graphic" ink transfer-medium, using an ink that is soluble in a particular solvent and is used to form a "master" plate that is subsequently used in a "spirit duplicating" copying process, and (d) a "correction" transfer-medium that is coated with a substance containing a pigment of the same color as that of the record-medium, and is used to correct an error in typing (as discussed in the definition of subclass 697 below).

TYPE-BAR

An elongated member having at one end a type-member* (i.e., a type-die* or a type-face*) element and at its other end a connection to one or more key* elements. In most manual type-writers, the number of type-bars corresponds to the number of keys provided, and the type-bars are pivoted to a type-bar-segment* so that the various type-faces are all impressed at approximately the same print-point*, but many variations of the construction are to be found. The type-bars may be pivoted to individual linkages, or may be slidable to print position. In some typewriters a single key may actuate a plurality of type-bars; in others, a plurality of keys may be depressed simultaneously to actuate a single type-bar; and in others (e.g., stenographic typewriters), there may be a plurality of character* symbols simultaneously imprinted.

TYPE-BAR-SEGMENT

A type-bar-segment is an arcuate member that serves to support all the type-bar* members for pivotal motion so that each of the type-member* elements carried by the type-bar members will be impressed onto the record-medium* at approximately the same print-point*. In some manual typewriters the type-bar-segment is moved to effect case-shift*. (This occurs because the type-member (i.e., type-face* or type-die*) that is at the print-point has been moved as a result of moving the type-bar-segment, so that an upper-case* or a lower-case* form of character* symbol is imprinted on the record-medium according to the choice of the typist.) The difference between a type-bar-segment and a type-face-carrier* (which also permits a type-bar to move relative thereto) is that a type-face-carrier moves both for selection of a character and for choice of upper-case of lower-case, whereas a type-bar-segment moves only for choice of upper-case or lower-case.

TYPE-DIE

An element that is impressed against a record-medium* to deform or pierce the surface of the record-medium into a representation of a character*. It is that portion of a type-member* that projects from the body of the type-member and contacts the surface of the record-medium to raise or lower the contacted surface relative to the uncontracted surface into a line representing a character, or to form one or more perforations in the contacted surface, which perforations taken together represent a character.

TYPE-FACE

An element that is impressed against a record-medium* to imprint a line representing a character*. It is that portion of a type-member* that projects from the body of the type-member, and contacts the surface of the record-medium to form the character by ink* applied to the type-face and transferred to the record-medium, or by ink applied via an ink ribbon* or similar transfer material that lies between the type-face and the surface of the record-medium.

TYPE-FACE-CARRIER

A type-face-carrier is a mechanism on which is mounted a plurality of type-member* elements (i.e., type-face* or type-die*) for movement of any one type-member relative to the remainder of the type-members mounted thereon. Usually a group of type-faces comprising a type-set-assemblage* is mounted on a type-face-carrier, face-carrier, and the type-face-carrier is capable of various kinds of movement. A typist will select one key* element from among the many key elements available, causing the type-face-carrier to move to a position at which the selected type-face will impact against a record-medium* to imprint the selected character* symbol (e.g., a particular letter, or a particular number, etc.) on the record-medium. A typist may choose to effect case-shift* or not effect case-shift, thereby to choose from the character symbols available on one key element the one symbol (e.g., the upper-case* or the lower-case* form of the same letter, etc.) thereby causing the type-face-carrier to move to a position at which the chosen type-face will imprint the chosen symbol. The mechanism also causes or enables relative movement between the type-face and the record-medium (e.g., movement of the type-face toward the print-point*) to imprint the selected or the chosen character or symbol on the record-medium. (See this Glossary, section III, under the definitions of the terms type-bar-segment* and type-head-carrier* for the differences between those mechanisms and a type-face-carrier).

TYPE-HEAD

A type-head is an element comprising one or more type-member* elements integral one with the other(s). In most manually powered type-writers a type-set-assemblage* is distributed among a plurality of type-heads, each of which as two type-face* elements. Some of these type-heads include a type-face for imprinting a particular letter in lower-case* and a type-face for imprinting the same letter in upper-case*, the choice being made by a case-shift* mechanism. Other type-heads in these manually powered type-writers include a type-face for imprinting a number and a type-face for imprinting a symbol (see the definition of character* in this Glossary for examples of a symbol), the choice of which is to be imprinted also being made by the case-shift mechanism. In some electrically powered type-writers a single type-head includes a complete type-set-assemblage, and said type-head is mounted on a type-head-carrier*. In such typewriters the single type-head is moved for selection of the type-face to be imprinted, or for the choice of the case to be used. In the definitions of the subclasses that follow, the term "type-head" has usually been reserved for the element that includes a type-set-assemblage on an electrically powered type-writer, and the element on the type end of a type-bar* has usually been referred to as a type-face.

TYPE-HEAD-CARRIER

A type-head-carrier is a mechanism on which is mounted at least one type-head* that includes a type-set-assemblage* (e.g., a group of type-face* elements) thereon for movement of the type-head relative to the type-head-carrier. Usually a type-head-carrier and the type-head mounted thereon are capable of various kinds of movement. A typist will select one key* element from among the many key elements available, causing the type-head to move (e.g., by oscillating and/or tilting) to a position at which the selected type-face will impact against a record-medium* to imprint the selected character* symbol (e.g., a particular letter, or a particular number, etc.) on the record-medium. A typist may choose to effect case-shift* or not effect case-shift, thereby to choose from the character symbols available on one key element the one symbol (e.g., the upper-case* or the lower-case* form of the same letter, etc.) that is to be imprinted, thereby causing the type-head to move to a position at which the chosen type-face will imprint the chosen symbol. The mechanism also causes or enables movement of the type-head (i.e., by movement of the type-head-carrier) between the type-face and the record-medium (e.g., movement of the type-face toward the print-point*) to imprint the selected or the chosen character or symbol on the record-medium. The difference between a type-head-carrier and a type-face-carrier* (which also carries a type-set-assemblage that moves both for selection of a character and for choice of upper-case or lower-case) is that a type-face-carrier supports individually movable type-face elements, whereas a type-head-carrier supports a type-head wherein all the type-face elements are integral therewith.

In some typewriters that use a type-head-carrier a single type-head includes a complete type-set-assemblage, and this type-head may be removed from its carrier and be replaced with a different type-head having a different font* (e.g., the style, character size, alphabet, or symbols that the typewriter can produce). In some typewriters that use a type-head-carrier plural type-heads may be provided, each including a complete type-set-assemblage (e.g., in different fonts, etc.) or each including only part of a complete type-set-assemblage (e.g., one-half of an assemblage on one type-head and the other half of that assemblage on the other type-head).

TYPE-MEMBER

An element having on a surface thereof a type-die* or a type-face* which is impressed against a record-medium* to imprint a character* in or on the surface of the record-medium. In most typewriters there is only one type-member corresponding to each character* that is to be typed, and the user of the typewriter selects from the assortment of type-members provided in the apparatus one type-member at a time to be imprinted, and serially imprints the selected type-members to form the characters representing the text to be typed.

TYPE-SET-ASSEMBLAGE

A group of type-face* elements including a multiplicity of type-faces for imprinting the different character* symbols that a typewriter is capable of imprinting in the same font* of type. In many typewriters a type-set-assemblage is carried on a plurality of type-bar* members that include all the type-faces that the typewriter can imprint, either in upper-case* or in lower-case*, or in the various character symbols. In other typewriters a single type-head* includes all type-faces that the type-writer can imprint in the same font, and that type-head can be removed from the typewriter to be replaced by a type-head for another type-set-assemblage of a different font. In still other typewriters two or more type-heads are provided to comprise one type-set-assemblage, or to comprise two or more type-set-assemblages in different fonts.

TYPEWRITER-ACTUATED-CONTROL

Typewriter-actuated-control is intended to refer to a mechanism wherein a first part of a typewriter moves to accomplish its intended first-part function, and during said movement the first part engages a second part to move the second part, thereby accomplishing a second function as the second part is moved. A simple example of a typewriter-actuated-control exists in the instance of a typewriter wherein the ribbon* vibrator has means for opening the guide means of the vibrator for the purpose of facilitating insertion of a new ribbon. When the vibrator is next lifted or raised to enable the ribbon to cover the print-point* to imprint the next character*, the upward movement of the vibrator for typing causes engagement of elements that "automatically" causes closing of the vibrator guide to its normal position without special intervention of the typist to accomplish the guide-closing function.

UNIVERSAL-BAR

A member that is part of a drive train of a typewriter, which member is driven by any of a multiplicity of elements and which member serves to drive any of a different multiplicity of elements. A universal-bar may be driven, for example, by a space-bar*, or by a character* key* element that causes imprint of a character and also drives the universal-bar either directly or via a type-bar* member or associated linkage. The universal-bar may then serve to drive a carriage-feed mechanism or a ribbon-feed mechanism or a character-counter mechanism or all these exemplary mechanisms concurrently.

UPPER-CASE

A capital letter, similar in appearance to this text, as opposed to lower-case*. The derivation of the terms upper-case* and lower-case is discussed in the definition of lower-case in this Glossary. See the definitions of character* and case-shift* in this Glossary for the forms of symbols that are imprinted when the case-shift mechanism is in the upper-case mode.

VIBRATOR

Vibrator is the typewriter industry term for an element or an assemblage of elements that (a) guides a ribbon* or constrains the ribbon for movement along its elongated dimension, and (b) is located on the typewriter adjacent to the print-point*, and (c) moves at least a portion of the ribbon that is so guided transversely to its elongated dimension from a first position adjacent to but not covering the print-point to a second position covering the print-point. The first position is a normal, or "rest" position that permits the print-line* to be seen by a typist, and the second position places the ribbon over the print-point so that a type-face* will be impressed against the ribbon to imprint a character* on a record-medium*. The vibrator movement may be controlled so as to move different zones of the ribbon to the print-point, each of which zones extends longitudinally and is spaced transversely to the others, whereby different colored characters may be imprinted.

WORD

For purposes of this class, a word is one or more imprinted character* symbols that are grouped together and separated from other groups of characters to convey intelligence or information to a reader. Usually a word consists of one or more letter characters that taken together as a group may also be spoken by people of a national or ethnic folk, but especially for purposes of this class, a word may consist of more number characters as well as letter characters, the words then conveying information in a cryptos:graphic "language".

WORD-SPACE

The distance that separates the last character* of one word* of imprinted text from the first character of a subsequent word of the same text on the same line of text.

SUBCLASSES

1 INCLUDING JUSTIFICATION OR QUADDING OF PRINT-LINE:

This subclass is indented under the class definition. Subject matter wherein more than one print-line* of character* symbols is imprinted on a record-medium* to form a page* of text, and wherein significance is attributed to the typing operation known as "justification" as that term is discussed and defined in (1) Note below, or significance is attributed to the typing operation known as "quadding" as that term is discussed and defined in (2) Note below, either operation modifying the print-lines of a page of text.

(1) Note. When typing in a language that is read from left to right, a typist can predetermine the left margin (i.e., the distance from the left edge of the record-medium to the first character of the print-line). The right margin (i.e., the distance from the right edge of the record-medium to the last character of the print-line) is sub-

ject to chance and depends on the number of character symbols and word* groups in the print-line; therefore, the right margin will usually not be even. "Justification" corrects the uneven right margin by expanding or contracting the print-line as necessary to make all the print-lines of uniform length. Justification is usually accomplished by typing a rough draft to form a print-line that ends within a "justification zone" and then retyping with the addition or subtraction of "unit" spaces to or from the character-space* or word-space* distances on the print-line. The characters and spaces in a print-line may be stored in a justification circuit which may include a "memory" and circuitry to modify the memory by the addition or subtraction of unit spaces described above to expand or contract the print-line. Justification may also be accomplished by typing on a stretchable record-medium as described in subclass 14 below.

(2) Note. The term "quadding" is derived from the printing and type setting arts, where the word "quad" refers to a piece of metal that is of less height than a type-face* and is used to form a blank space in the printed line. By introducing quads in sufficient numbers and appropriate positions, a printed line could be printed as "quad right" (i.e., the last character of successively printed lines uniformly spaced from the right edge of a page) or printed as "quad left" (i.e., the first character of successively printed lines uniformly spaced from the left edge of a page) or printed as "quad center" (i.e., the first and the last character of the same printed line equally spaced from the left and the right edge of the page, respectively). A similar appearance of text and successively imprinted print-lines can be accomplished on a typewriter by quadding to control the location of the first or the last character (or both of said characters) of a print-line. In addition, the quadded print-lines may also be expanded or contracted in an operation similar to justification [described in (1) Note above], so that the text that has been subjected to a quadding operation will also appear to be justified.

2 **Including quadding of print-line:**
This subclass is indented under subclass 1. Subject matter wherein more than one print-line* of character* symbols is imprinted on a record-medium* on a page* of text, and wherein significance is attributed to the typing operation known as "quadding" as that term is discussed and defined in (2) Note of subclass 1 above.

3 **By programmed-control-system:**
This subclass is indented under subclass 1. Subject matter wherein significance is attributed to the typing operation known as "justification" as that term is discussed and defined in (1) Note of subclass 1 above, and wherein the justification is accomplished by way of a programmed-control-system*.

(1) Note. The programmed-control-system is not particularly described in the patents of this subclass (3), but rather is referred to as a "register" of a "memory" that is modified, or a variant of such terminology. However, it is clearly described as a means for modifying the operation of a typewriter to produce a justified print-line*.

SEE OR SEARCH CLASS:
358, Facsimile and Static Presentation Processing, subclasses 1.1 through 1.18 for static presentation processing (e.g., processing data for printer, etc.).
707, Data Processing: Database and File Management, Data Structures, or Document Processing, subclasses 517 through 525 for document layout processing and subclasses 530-541 for document edit, composition, or storage control processing.

4 **On auxiliary-record-program (e.g., tape, card, etc.):**
This subclass is indented under subclass 3. Subject matter wherein the programmed-control-system* includes a set of instructions that may be readily removed from the typewriter so that another set of instructions may be inserted into the typewriter to perform a different or modified sequence of justifying operations.

5 Magnetic record:
This subclass is indented under subclass 4. Subject matter wherein an auxiliary-record-program* includes or contains ferrous particles capable of being oriented or reoriented relative to the auxiliary-record-program, the orientation of the particles being sensed to effect the control of the typewriter or the justification of a print-line* typed thereby.

6 With error-correcting storage register:
This subclass is indented under subclass 4. Subject matter wherein the programmed-control-system* includes a "memory" circuit and means for amending or modifying the program in the event that a typist has made a mistake in the typed text or in the justification thereof so that the text may be retyped with the mistake rectified.

SEE OR SEARCH THIS CLASS, SUBCLASS:
74, for error detection and correction of a program for selection of type-face* elements.

7 Including artificial or end-of-line hyphen:
This subclass is indented under subclass 4. Subject matter wherein the auxiliary-record-program* includes provision of determining if and where a "hyphen" will be imprinted at the end of a print-line* and provision for inserting the hyphen properly.

(1) Note. A hyphen is a punctuation mark comprising a short line used to indicate the end of a syllable in a word* which has been divided so that one or more syllables of that word appear on one print-line and the remainder of the syllables of that word appear on a succeeding print-line.

8 By using "no-print" device:
This subclass is indented under subclass 1. Subject matter wherein significance is attributed to the typing operation known as "justification" as that term is discussed and defined in (1) Note to subclass 1 above, and wherein the justification is accomplished with the use of a means for not printing or suppressing the imprinting of one or more character* symbols of a print-line*.

9 By interword or intercharacter spacing:
This subclass is indented under subclass 1. Subject matter wherein significance is attributed to the typing operation known as "justification" as that term is discussed and defined in (1) Note of subclass 1 above, and wherein the justification is accomplished by adding to or subtracting from the character-space* or the word-space* distances in a print-line*.

10 Variable carriage-feed mechanism:
This subclass is indented under subclass 9. Subject matter wherein the character-space* or the word-space* distances are varied for justification by moving the carriage* in irregular or unequal increments of movement.

(1) Note. The variable carriage-feed mechanism that may be used for the typewriter of this subclass is of the kind that, per se, is found in subclass 303.

SEE OR SEARCH THIS CLASS, SUBCLASS:
303, and see (1) Note above.

11 Carriage slidable relative to its carriage-rack:
This subclass is indented under subclass 9. Subject matter wherein the typewriter is provided with a carriage* that is attached to a tab-rack* that enables the carriage to be moved in a character-space direction and wherein the character-space or the word-space* distances are varied for justification by moving the carriage along the tab-rack in varying or irregular increments required for justification.

(1) Note. A fuller explanation of the relationship between the various elements of a carriage-feed mechanism will be found in the definitions of tab-rack and the various definitions of subclasses indented under 283.

12 By interword spacing only:
This subclass is indented under subclass 9. Subject matter wherein the justification is accomplished by adding to or subtracting from the word-space* distances in a print-line*.

13 Including plural space-bars for different spacings:
This subclass is indented under subclass 12. Subject matter wherein the typewriter is provided with two or more space-bar* elements on the key-board* of the typewriter, each of which space-bar* elements will effect a word-space* distance different than the other(s), and wherein justification is accomplished by using one or another of the space-bars during the imprinting of the print-line* according to what distances are needed to justify the print-line.

14 By typing line on stretchable medium:
This subclass is indented under subclass 1. Subject matter wherein significance is attributed to the typing operation known as "justification" as that term is discussed and defined in (1) Note to subclass 1 above, and wherein the justification is accomplished by typing print-line* of character* symbols on a material that is capable of being elongated.

(1) Note. In this subclass justification is accomplished by typing a print-line on a stretchable ribbon* to an extent less than that of the desired print-line, and subsequently adhering either the ribbon or the characters* that have been imprinted on the ribbon to the record-medium*.

15 Including justification indicator:
This subclass is indented under subclass 1. Subject matter wherein significance is attributed to the typing operation known as "justification" as that term is discussed and defined in (1) Note to subclass 1 above, and wherein the typewriter is provided with means for helping the typist to know the need for justification or the number of character-space* distances required for justification.

SEE OR SEARCH THIS CLASS, SUBCLASS:
703, for other indicator means.

16 FOR TYPING OR FORMING CONTINUOUS OR DISCONTINUOUS LINE (E.G., BY "LINER"):
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter capable of producing a mark on a record-medium*, which mark is long in proportion to its breadth.

(1) Note. The mark may be formed by a penlike instrument that applies ink* to the record-medium in a continuous stroke or movement of the instrument relative to the record-medium (e.g., by moving the record-medium with respect to a stationary pen), or may be formed by impacting the record-medium with a succession of short marks (e.g., each produced by a dash) that overlap to form a continuous line, or the marks may be separated, but taken as a whole form a dotted line or a dashed line.

17 Including programmed-control-system:
This subclass is indented under subclass 16. Subject matter wherein a programmed-control-system* is used for giving instructions to which the typewriter responds by forming said mark (e.g., a line) in the record-medium*.

18 By scriber (e.g., pen, pencil, etc.) or with scriber guide:
This subclass is indented under subclass 16. Subject matter wherein said mark is formed or produced by contacting the record-medium* with an instrumentality that is provided with ink*, pigment, or coating material that is visible to the eye, and by moving the record-medium, or the instrumentality while the record-medium is coated on the record-medium, or wherein said mark is formed or produced by such an instrumentality with the help of a device, which device is used by an operator to direct the course or path of the instrumentality while in contact with the record-medium.

(1) Note. In this and the indented subclasses, the scriber is disclosed as an addition to a usual or standard typewriter.

19 For writing in script:
This subclass is indented under subclass 18. Subject matter wherein the instrumentality is moved relative to the record-medium* in a path that forms cursive letters (i.e., joined together in flowing strokes as formed in handwriting).

20 Rotatable disc scriber:
This subclass is indented under subclass 18. Subject matter wherein the instrumentality is a plate turned on an axis and having a thin peripheral edge that is coated with ink* that is transferred to the record-medium* as the plate is turned while the edge is in contact with the record-medium and while relative movement between the plate axis and the record-medium occurs.

21 Responsive to carriage movement:
This subclass is indented under subclass 16. Subject matter wherein the typewriter is provided with a carriage* that carries a platen* that supports the record-medium*, which carriage is movable in a direction parallel to a print-line*, and wherein said mark is formed as a result of the carriage being moved while a marking instrument or device is brought into contact with the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
299, for a similar structure that imprints a succession of the same character* symbol.

22 Underscoring concurrently with character imprinting:
This subclass is indented under subclass 16. Subject matter wherein the typewriter is provided with type-face* elements that are selectively impressed against the record-medium* to imprint character* symbols on the record-medium, and wherein a mark is imprinted at the same time that a character is imprinted, the mark being a short line that is imprinted underneath any of the selected characters.

23 FOR TYPING ON FLAT RECORD-MEDIUM OR AGAINST FLAT PLATEN:
This subclass is indented under the class definition. Subject matter wherein the significance is attributed to a typewriter in which the record-medium* that is being typed on is planar or in which the record-medium is backed by a platen* that is planar.

(1) Note. In the definition of the term platen in the Glossary, section III, there is a discussion of some of the various forms of platen. Included therein is a discussion of the difference between a flat or planar platen and a cylindrical platen. This and indented subclasses are the loci of disclosures wherein a typewriter is provided with a significant flat or planar platen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
648, for a cylindrical platen in a typewriter.

24 For typing on a book:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter particularly intended for typing on a book.

(1) Note. A "book" is an assemblage of pages* or sheets that have been fastened or bound together. One of the characteristics of a book that is significant in this subclass or the subclasses indented hereunder is that pages are turned to be inverted for recording of information thereon. As a consequence of such use, the number of pages on one side of the binding will increase as the number of pages on the other side of the binding decreases, resulting in unequal thicknesses of material on each side of the binding.

25 Including a type-head (e.g., cylinder, disc, etc.):
This subclass is indented under subclass 24. Subject matter wherein the typewriter is provided with a type-head* element that carries type-face* elements thereon.

(1) Note. A type-head is distinguished from a type-face* in that a type-head carries in one member a complete (or substantially complete) type-set-assemblage* that includes many type-faces.

26 Against cylindrical backing:
This subclass is indented under subclass 24. Subject matter wherein the book that is being typed on is supported against movement away from the type-face* that is impressed against the book, the support being an elongated member that is circular in cross section.

(1) Note. The back or supporting is similar in configuration to a cylindrical platen*, but the book is not partially wrapped about the platen as in the usual typewriter where the record-medium* encompasses the platen through approximately 180°. In this typewriter, the book is approximately tangent to the surface of the cylindrical backing.

27 Including adjustment of typewriter relative to book (e.g., to compensate for book thickness):
This subclass is indented under subclass 24. Subject matter wherein significance is attributed to modifications made in the position of operating portions of the typewriter that are required due to the configuration of the book that is being typed on.

(1) Note. See the (1) Note of subclass 24 for one of the configurations of a book that requires special adjustments to be made to a typewriter to type on a book.

28 Including adjustment of book support relative to typewriter (e.g., for top or bottom of book, etc.):
This subclass is indented under subclass 24. Subject matter wherein significance is attributed to modifications made in the position of that portion of a typewriter that holds a book in position to be typed on.

(1) Note. This subclass also provides for a support that holds a book upright so that the top or the bottom of a book may be typed on.

29 For typing on flat blueprint or drawing (e.g., "platenless" typewriter):
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which the record-medium* that is being typed on has length and width dimensions that are substantially greater than the corresponding dimensions of the typewriter, and wherein the typewriter is moved in directions parallel to said dimensions to properly locate the typewriter relative to the record-medium.

(1) Note. The term platenless has been ascribed to such a typewriter because it does not have a platen* (in the usual sense of the word) connected thereto. Instead, the drawing board or other large, flat surface that ordinarily supports a blueprint or drawing also supports the typewriter, and serves as the platen for this form of typewriter.

30 For typing on carton or package:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which the record-medium* that is being typed on is a three-dimensional object that has flat surfaces defining its sides, and wherein either the typewriter or the object may be moved to enable the typewriter to type on one of the surfaces.

31 By multidirectional movement of typewriter structure (e.g., "Elliot-Fisher" structure):
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter that is mounted relative to a flat platen* so that the typewriter, its keyboard*, type-bar* members, and all its operating mechanisms move as a unit in the widthwise and lengthwise dimensions of the platen.

(1) Note. The term Elliot-Fisher derives from the names of the persons to whom the invention and development of this form of typewriter is ascribed.

(2) Note. This subclass also includes structure for levelling the carriage* frame relative to the flat platen.

32 Bottom-strike typewriter including type-bar action or bar platen or anvil platen:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against a flat platen* from underneath the platen, to structure that moves a type-bar* carrying a type-face element from its rest position to its impact position, or to a bar platen (e.g., a platen having dimensions corresponding to the height of a character* and the length of a print-line*), or to an anvil platen (i.e., a platen having dimensions corresponding to the height and width of one character).

SEE OR SEARCH THIS CLASS, SUBCLASS:
408, for a bottom-strike typewriter and its type-bar action mechanism.

33 Top-strike typewriter including pivoted type-bar:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against a flat platen* from above the platen, and wherein significance is also attributed to structure that moves a type-bar* carrying a type-face from its rest position to its impact position, the movement being arcuate.

SEE OR SEARCH THIS CLASS, SUBCLASS:
415, for a top-strike typewriter and its type-bar-action mechanism.

34 Including carriage-return mechanism:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against a flat platen*, and wherein significance is also attributed to movement of the carriage* of the typewriter in a direction opposite to the character-space* direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
313, for carriage-return mechanism.

35 Including case-shift by shifting platen:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against a flat platen*, and wherein significance is also attributed to movement of the platen to accomplish case-shift* from a lower-case* form of a letter to an upper-case* form of that letter.

SEE OR SEARCH THIS CLASS, SUBCLASS:
251, for case-shift mechanism.

36 Including ribbon-feed mechanism:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against a flat platen* at a print-point*, and wherein significance is also attributed to mechanism for feeding a ribbon* relative to the print-point.

(1) Note. Mechanism for feeding a ribbon is found in subclass 223, which subclasses should be searched for ribbon feed, per se.

SEE OR SEARCH THIS CLASS, SUBCLASS:
223, and see (1) Note above.

37 For typing on manifold set (e.g., with type-die, etc.):
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements or type-die* elements impact against a record-medium* that is backed by a flat platen*, and wherein significance is also attributed to the use of manifold set that includes carbon paper so that the typewriter produces an original copy and at least one carbon copy.

(1) Note. The terms “carbon paper” and “manifold set” are discussed in (1) Note and (2) Note, respectively, of subclass 497.

SEE OR SEARCH THIS CLASS, SUBCLASS:
497, for a cylindrical-platen typewriter for typing on a manifold set and see (1) Note above.

38 Including feeding of wide carbon paper transverse to feed of record-medium:
This subclass is indented under subclass 37. Subject matter wherein the record-medium* of a typewriter is fed in a first direction coinciding with the line-space* direction, and wherein said carbon paper is moved (i.e., fed) in a second direction substantially perpendicular to the first direction and the carbon paper has a width dimension that is relatively large and approximately equal to the length of a page* of record-medium.

(1) Note. In some typewriters of this subclass the carbon paper is wound on either a supply roll or a take-up roll or both.

39 Including spool for roll of carbon paper:
This subclass is indented under subclass 37. Subject matter wherein said carbon paper is of indeterminate length and is wound on a reel either for supply or take up of the carbon paper or both.

40 Including clamp or guide for carbon paper:
This subclass is indented under subclass 37. Subject matter wherein the flat platen* or another portion of the typewriter is provided with means to firmly hold said carbon paper to the platen, or to lead or direct the carbon paper relative to the platen.

41 Including adjustment of platen perpendicular to its surface:
This subclass is indented under subclass 37. Subject matter wherein the platen* of the typewriter is movable for the purpose of varying its position relative to other portions of the typewriter, the movement occurring along a line at right angles to the flat surface of the platen.

42 Including aligning and feeding manifold set:
This subclass is indented under subclass 37. Subject matter wherein said manifold set includes a plurality of pieces of web record-medium* interleaved with a plurality of pieces of web carbon paper, all the pieces being in surface-to-surface relationship and the pieces are positioned so that their corresponding side edges are located adjacent one another or so that a particular indicium that occurs along the length dimension of one piece is located adjacent to a corresponding indicium that occurs along the length dimension of another web, and wherein the manifold set is moved along the flat platen* in a line-space* direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
606, for aligning and feeding of plural webs in a standard typewriter.

43 Including feed of tally strip:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to the feeding of a tally strip in a flat-platen* typewriter.

(1) Note. The term "tally strip" is discussed in the definition of subclass 586, see the (1) Note thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:
586, for a cylindrical-platen typewriter for typing on a tally strip and see (1) Note above.

44 Including line-spacing mechanism:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against a record-medium* that is backed by a flat platen* at a print-point*, and wherein significance is also attributed to effecting relative movement between the record-medium and the print-point in a step-by-step manner so that successively imprinted print-lines* will be spaced apart by line-space* distances.

SEE OR SEARCH THIS CLASS, SUBCLASS:
545, for line-spacing by incremental rotation of a cylindrical platen.

45 Platen shifted for line-spacing:
This subclass is indented under subclass 44. Subject matter wherein line-space distances are effected by moving the flat platen* along a line that is perpendicular to the print-line*.

(1) Note. This subclass also includes some typewriters wherein the platen is shifted for line-spacing and the platen is also shifted for character-spacing.

46 Including adjustment of line-space distance or increment:
This subclass is indented under subclass 44. Subject matter wherein the extent of the space intervention between two successive print-lines* may be varied.

(1) Note. The difference between the two kinds of adjustment herein provided for is as follows:

If a typist changes the space between one print-line and the next print-line to be typed, by manual intervention for the

one print-line which is to be differently spaced, that is an adjustment of line-space* distance. However, if the typewriter is re-set to change the spaces between any plurality of print-lines to make those spaces different from the spaces between a previous plurality of print-lines, that is adjustment of the line-space increment.

47 Including disengagement of line-spacing mechanism:
This subclass is indented under subclass 44. Subject matter wherein the typewriter is provided with means whereby structure for effecting the relative movement (i.e., of subclass 44) may be disconnected temporarily.

(1) Note. The disengagement is usually for the purpose of facilitating the loading of a flat platen* with record-medium*. Also found herein is a typewriter wherein the line-spacing* mechanism may be locked against movement.

48 Work support (e.g., sheet or card holddown or guide, sheet-size platen, etc.):
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a device or member for backing the record-medium* as type-face* elements are impacted thereagainst.

(1) Note. The device or member may include a flat platen*, per se, for example, characterized as being of dimensions corresponding to a sheet that it will hold, or may include means for holding or guiding the record-medium relative to the flat platen, these being only examples of the subject matter of this subclass.

49 Collating-table attachment:
This subclass is indented under subclass 23. Subject matter wherein significance is attributed to a collating-table* that is associated with a flat-platen* typewriter.

50 INCLUDING DELAY MEANS FOR PREVENTING MALFUNCTION IN POWERED TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein a source of energy other than that supplied by a typist is used to actuate, or aid a typist to actuate, mechanism for performing first and second sequential operations on a typewriter. The typewriter having a capability of performing each of said operations in an optimum time period from the instant that each operation has been initiated by a signal, until the instant that each operation is complete, and wherein there will be a failure in proper performance of the second operation if the first operation has not reached a first predetermined stage of performance before the second operation has reached a second predetermined state of performance and wherein significance is attributed to sensing an occurrence wherein a signal to initiate the second operation has been given prematurely. As a result of such sensed occurrence, retarding the performance of the second operation to assure the first operation has reached the first stage before the second operation reaches the second stage.

51 Delay of sequential character rate in programmed-control typewriter:
This subclass is indented under subclass 50. Subject matter wherein the sequential operations are regulated by a programmed-control-system*, and wherein the first and second operations are each for typing of a character*, and wherein the retarding of the second operation is by increasing the period of time for performing the second operation from said optimum period to a time greater than said optimum period.

52 Delay by storage of next character to be imprinted:
This subclass is indented under subclass 50. Subject matter wherein the first and second operations are each for typing a character*, and wherein after the second operation has been initiated, it is retarded by holding it from completion for a predetermined period of time.

53 INCLUDING ADJUSTMENT MEANS TO COMPENSATE FOR WEAR:

This subclass is indented under the class definition. Subject matter whereby attrition of a typewriter part occurs during use of the typewriter, and wherein significance is attributed to changing the position of such part relative to another part to counteract such attrition.

54 SAFETY SWITCH OR CONDITION-RESPONSIVE-CUTOFF SWITCH FOR ELECTRICALLY POWERED TYPEWRITER:

This subclass is indented under the class definition. Subject matter wherein typewriter mechanism is driven with the help of force derived from electrical energy and wherein significance is attributed to a device for influencing a circuit through which the energy is supplied, said device being either for preventing the typist from being harmed, or for interrupting the circuit as a result or characteristic of the state of the environment or the occurrence of a predetermined event in a typewriter.

(1) Note. Examples of devices provided for in this subclass are a switch which cannot be placed in an "on" position unless a cover prevents access to the electrically powered mechanism, and a switch that will automatically turn the power "off" after a preset time interval if the typewriter is left unattended.

55 INCLUDING ADJUSTMENT FOR OPTIMUM PRINTING PLANE:

This subclass is indented under the class definition. Subject matter wherein significance is attributed to adjustment of the optimum printing plane of a typewriter as that term is discussed and defined in (1) Note below.

(1) Note. In over simplified terms, a typewriter requires at least two elements for a typing operation. One of these elements is a type-member* that impacts against a record-medium* at a print-point*; another of these elements is a platen* that serves to prevent movement of the record-medium away from the type-member during impact. (Obviously, other structures and mechanisms are also required for operation, but discussion of these may be deferred.) The type-member includes a type-face* that lies in a plane; the platen includes a surface that lies in a plane. In the instance of a cylindrical platen, the platen plane is theoretically tangent to the peripheral surface of the platen, whereas the surface itself is arcuate, therefore not planar, but considering the small area of a character* compared to the area of a cylindrical platen, the difference between the arcuate surface and the tangent plane is minimal; the platen plane can be considered as planar. Theoretically, the platen plane should coincide with the type-face plane when the type-face is at the print-point to ensure an imprinted character that is uniformly legible at any point on its area. Actually, the two planes cannot coincide because of the thickness of the record-medium and the thickness of a ribbon*, both of which lie between the two planes in most typewriters, but at the very minimum the two planes should be parallel, one to the other. Because in an actual typewriter the planes may become out of parallelism with each other, it is necessary to provide means to adjust either the platen plane or the type-face plane, or both, to correct the possible misalignment. Moreover, in an actual typewriter the number or thickness of record-medium sheets may vary. If the record-medium of greater than usual thickness is used, the type-face will impact the surface of the record-medium at a print-point that is further from the axis of the platen than is usual. The type-face plane would not be parallel to the plane of the record-medium at the new print-point. To summarize, the "optimum printing plane" is the plane at which the type-face and the record-medium best meet to form an imprinted character that is uniformly legible at any point on its area, and is the result of adjustments to the typewriter to ensure the coincidence and parallelism of the record-medium with the type-face at the print-point.

56 Responsive to thickness of record-medium:

This subclass is indented under subclass 55. Subject matter wherein the thickness dimension of the record-medium* (i.e., its dimension

perpendicular to a surface area) is measured, and the adjustment of the optimum printing plane is made by the typewriter as a result of such measurement.

57 In accordance with the number of sheets of record-medium:
This subclass is indented under subclass 55. Subject matter wherein the typist determines the number of sheets or record-medium* that is to be typed upon during the typing operation, and wherein the typist makes an adjustment to the typewriter as a result of such determination.

58 By adjustment of platen relative to carriage:
This subclass is indented under subclass 55. Subject matter wherein the optimum printing plane is adjusted by varying the position of the typewriter platen* with respect to the carriage* on which the platen is supported.

59 By adjustment of carriage (e.g., carriage-guide rollers):
This subclass is indented under subclass 55. Subject matter wherein the optimum printing plane is adjusted by varying the position of the carriage* of the typewriter with respect to the print-point.

(1) Note. In this subclass the position of roller elements or the carriage frame on which the carriage moves to and fro is adjusted.

60 Via adjustment of case-shift linkage:
This subclass is indented under subclass 59. Subject matter wherein the typewriter is provided with a case-shift mechanism that is connected to the carriage* for choice of upper-case* or lower-case* form of type-face* element, and wherein the optimum printing plane is adjusted by varying the position of the carriage with respect to the case-shift mechanism.

61 INCLUDING CONTROL OF FORMAT AND SELECTION OF TYPE-FACE BY PROGRAMMED-CONTROL-SYSTEM (E.G., INPUT TYPEWRITER):
This subclass is indented under the class definition. Subject matter wherein a programmed-control-system* governs the operation of a typewriter so as to control the format of the text to be imprinted on a record-medium* and so as to impress selected or chosen type-face* elements against the record-medium.

(1) Note. The term "format" refers to physical appearance. As used in the typewriter art the term refers to the appearance of a page* of text of typewritten character* symbols. Control of format involves (a) movement of the record-medium in the line-space* direction (i.e., the "Y" direction of a graph) to locate the record-medium at a desired print-line* location and (b) movement of the carriage* (e.g., a platen* carriage or a type-head* carriage) in a character-space* direction (i.e., the "X" direction of a graph) to locate the first-imprinted-character symbol of the print-line along that print-line. Format control also governs such function* operations as carriage return (Found, per se, in subclass 313), tabulation (found, per se, in subclass 284), subsequent line-spacing* (found, per se, in subclass 545), or record-medium feeding (found, per se, in subclasses 578), (these functions being only exemplary) so that the entire format of the printed text on the record-medium is controlled. In some typewriters having format control the typewriter or the program is capable of being modified to change the format as desired. For example, a paragraph of text comprising six print-lines, each print-line having approximately 70 characters thereon, may be changed to a paragraph comprising 12 print-lines, each print-line having approximately 35 characters thereon; or the distance between successive print-lines may be varied as desired to compress or expand the typed text to fit a page.

(2) Note. In the typewriter of this and indented subclasses, the programmed-control-system also governs the operation to select or choose the type-face elements that are to be used to imprint the characters in sequence. The difference between "select" and "choose" as to type-face, is discussed in the glossary under definitions such as case-shift*, type-face-carrier*, type-head, and type-head-carrier*. Briefly, a particular type-

face is selected from among the many available from a type-set-assemblage, whereas an upper-case* form of letter (As distinguished from a lower-case* form of the same letter) is chosen from the forms available on one key* element.

SEE OR SEARCH THIS CLASS, SUBCLASS:
70, for selection of type-face by a programmed-control-system.
76, for control of format by a programmed-control-system.

62 Including means for responding to input program or incoming signals and providing output program or signals representing typing operations (e.g., output typewriter):
This subclass is indented under subclass 61. Subject matter wherein the typewriter is governed by an auxiliary-record-program* or is governed by an instrumentality outside of the typewriter, which instrumentality transmits to the typewriter the instructions necessary to control the typing functions* and type-face* selections and choices, and wherein the typewriter also generates an auxiliary-record-program or also generates the instructions necessary to control the typing functions and type-face selections and choices for another typewriter.

(1) Note. The typewriter of this subclass is known as an "input-output" typewriter in the art. The "input" of this typewriter may be from a program in the form of a punched or magnetic tape or other record, or may be in the form of signals from a "computer" or "register" or "memory" outside of the typewriter. The "output" of this typewriter may also be in the form of a program tape or other record, or may be in the form of signals to a "computer" or "register" or "memory", the signals being generated in response to depression of the key* elements on a key-board* by a typist and being transmitted to another typewriter. The typewriter of this subclass is capable of responding to an input and of producing an output. Also a typewriter of this subclass could be one of several typewriters in a chain wherein the "input" of one typewriter is converted to an "output" of that typewriter, which "output" of the first typewriter becomes the "input" of a second typewriter, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
80, for an "output" typewriter.

63 Including editing or revision system:
This subclass is indented under subclass 61. Subject matter wherein significance is attributed to a typewriter capable of editing or revision as those terms are discussed and explained in the notes below.

(1) Note. The term "revision" is applied to an operation wherein the text of typewritten material is changed. Typically, a typist types a "rough draft" text and generates a "rough draft program". The text is proof-read and various changes are indicated where necessary to add, delete, modify spelling, or otherwise correct the text. The typist or proofreader then locates on the rough draft text and program the portion of text to be changed and reprograms to correct the text. The reprogrammed corrections may be put onto a correction program or onto the rough draft program or onto another instrumentality. The correction program is then combined with the rough draft program to in corporate all the changes and corrections into a master program which is then used to reproduce as many original copies as are desired. A revision system typewriter is sometimes used as an input or as an output, and usually additional equipment is necessary to correlate the changes so that they may be entered properly in the master program.

(2) Note. The term "editing" is applied to an operation wherein the appearance (e.g., the format) as well as the text of typewritten material is changed. An editing system will usually operate similarly to a revision system, but will include changes such as "centering", "indent paragraphing", or other format control changes. An incoming program (i.e., input) will be modified by appropriate equipment to perform format control or character-

selection control that is different from the original program.

SEE OR SEARCH CLASS:

707, Data Processing: Database and File Management, Data Structures, or Document Processing, subclasses 530 through 541 for document edit, composition, or storage control processing.

709, Electrical Computers and Digital Data Processing Systems: Multiple Computer or Process Coordinating, subclasses 200+ for data transferring among multiple computer and digital processing systems.

710, Electrical Computers and Digital Data Processing Systems: Input/Output, subclasses 1+ for transferring data from one or more peripherals to one or more computers for the latter to process, store, or further transfer or for transferring data from the computers to the peripherals.

64 Including right-hand margin control system:

This subclass is indented under subclass 61. Subject matter wherein the programmed-control-system* governs the location or extent of the margin* at the right side of the record-medium* that is being typed on.

(1) Note. In this subclass the "input" to the typewriter does not include right-hand margin control and such control is added by the system, or the system does particularly include a right-hand margin control and such control is either retained or is particularly modified by the system. The operation known as "justification" is not included here, but is to be found in subclass 1.

65 Including typing of s:graphical representations:

This subclass is indented under subclass 61. Subject matter wherein the programmed-control-system* governs the operation of a typewriter so as to imprint character* symbols and also governs the operation of said typewriter so as to produce a graph denoting the imprinted character symbols.

(1) Note. A "graph" is defined as a diagram representing a system of connections or interrelations among two or more things by a number of distinctive dots, bars, etc. The graph or chart produced in this subclass represents the letter characters or number characters that are imprinted by the typewriter.

66 Including baseplate attachment with electromagnets for input or output operations:

This subclass is indented under subclass 61. Subject matter wherein significance is attributed to a mechanism that is connected as an adjunct to a typewriter, which mechanism is used to convert a typewriter that is operable by a typist depressing the key* elements of the key-board* to a typewriter that is operable by a programmed-control-system*, and which mechanism is located underneath the typewriter and operates the type-face* selecting or choosing means and the function* operations of the typewriter.

(1) Note. Usually the attachment is used to convert a standard typewriter to an input-output typewriter, but it may also be part of the typewriter that is used as a "computer terminal".

67 Separate interrelated programs:

This subclass is indented under subclass 61. Subject matter wherein a typewriter is provided with at least two programmed-control-system* programs, each of which programs is intended for a different sequence of operations to be performed, by the typewriter, and the programs being coordinated to produce a final text.

(1) Note. In this subclass, one of the programs may be for the selection or choice of character* symbols and another program may be for the line-space* or the character-space* control, and both programs are used together.

68 Including message writing (e.g., address program, form-letter program, etc.):

This subclass is indented under subclass 67. Subject matter wherein at least one of the programs effects the typing of a part of a communication of information and another of the

programs effects the typing of another part of the same communication.

(1) Note. An example of the subject matter of this subclass is a program for typing the body of a letter (i.e., "letter" in the sense of a piece of correspondence) that will be sent to various people, and a plurality of programs, each program for typing the address of each of the people to whom the correspondence will be sent.

69 Type-face selection via magnetic program tape:

This subclass is indented under subclass 61. Subject matter wherein the program-control-systems* includes an auxiliary-record-program* that comprises a band or ribbon* of material containing ferrous particles capable of being oriented or reoriented relative to the band or tape, the orientation of the particles being sensed to effect selection or choice of the type-face* elements that will be impressed against the record-medium* to effect imprint of character* symbols in sequence.

70 INCLUDING SELECTION OF TYPE-FACE BY PROGRAMMED-CONTROL-SYSTEM OR BY REMOTE CONTROL:

This subclass is indented under the class definition. Subject matter wherein a programmed-control-system or a signal from outside of a typewriter governs the operation of the typewriter so as to impress selected or chosen type-face* elements against the record-medium* to imprint character* symbols successively.

(1) Note. In the typewriter of this and indented subclasses the programmed-control-system is used to select or choose the type-face elements that are to imprint the characters in sequence. The difference between "select" and "choose" as to the type-face element is discussed in the glossary, section III, under definitions such as case-shift*, type-face-carrier*, type-head*, and type-head-carrier*. Briefly, A particular type-face is selected from among the many available from a type-set-assemblage*, whereas an upper-case* form of letter (As distinguished from a lower-case* form of the same letter) is chosen from the forms of that letter available on one key* element.

(2) Note. The signal from outside the typewriter that governs the operation of the typewriter is usually referred to in such functional terms as "reader", "translator", "storage", "input", etc. it is not a remote signal such as that transmitted by a printing telegraph of Class 178. See (1) note to Class 178, Telegraphy, in section IV of the class definition of this class (400), for the distinction between this class (400) and Class 178, Telegraphy.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61, for selection of type-face and control of format by a programmed-control-system.

SEE OR SEARCH CLASS:

178, Telegraphy, and (2) note above.

71 Plural typewriters coupled for simultaneous operation (e.g., "master-slave" relationship):

This subclass is indented under subclass 70. Subject matter wherein a first typewriter, while it is operating to type on a record-medium*, produces signals. These signals (i.e., signals from inside the first typewriter, but from outside a second typewriter) are used to govern the operation of the second typewriter concurrently with the operation of the first typewriter, whereby corresponding character* symbols are typed onto a second record-medium at the same time that character symbols are typed onto the first record-medium by operation of the key-board* of the first typewriter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

77, for a typewriter coupled to an information-recording machine.

72 Including character-selection latches (e.g., for type-face selection):

This subclass is indented under subclass 70. Subject matter wherein the programmed-control-system* governs the selection or choice of a type-face* element that is part of a type-head* by way of components known in the

typewriter industry as "character-selection latches".

(1) Note. The term character-selection latch refers to a component used in a typewriter having a spheroidal type-head that is supported by a type-head-carrier* that is mounted on a type-head carrier* (see the definition of carriage in the glossary). A typewriter of this subclass is provided with a plurality of these components (usually five or six), each of which is hook shaped to "latch" to a common actuator bar or member and is connected to a "whiffletree" arrangement of links. A signal representing a selected character* or function* causes one or character is selected, certain of the components will be latched and when another particular character is selected, other components will be latched or a different permutation of components will be latched. Movement of the common actuator will move those components that have been permutatively latched thereto. Movement of the latched components will move the links of the whiffletree, and movement of the whiffletree links will be converted into tilting and/or rotational movement of a spheroidal type-head to thereby position the selected type-face so that movement of the type-head-carrier to the record-medium* will effect imprint of the selected character, or movement of the whiffletree links will be converted into movement of a selected function* (e.g., case-shift*).

73 Including particular reader structure and operation:

This subclass is indented under subclass 70. Subject matter wherein significance is attributed to means for converting the information stored on the program of a programmed-control-system* into the operation of selection or choice of a particular type-face* element and motion of the selected or chosen type-face to the record-medium*.

(1) Note. In the patents of this subclass the converting means (i.e., the "reader") is specifically claimed as a part of the typewriter that controls the operation of the typewriter in specific terms. In other words, the typewriter is more than merely named as a load for the reader. The reader having a named typewriter is classified elsewhere, see the search class note below.

SEE OR SEARCH CLASS:

358, Facsimile and Static Presentation Processing, subclass 1.6 for a reader of a programmed control system together with a named typewriter.

74 Including error detection:

This subclass is indented under subclass 70. Subject matter wherein significance is attributed to a portion of the program of a programmed-control-system* which provides verification of the text to insure that the character* symbols that are being imprinted on the record-medium* are the characters that the programmed-control-system is instructing the typewriter to imprint.

SEE OR SEARCH THIS CLASS, SUBCLASS:

6, for an error-correcting storage register in a "justification" typewriter.

75 Including type-bar selection using mechanical program:

This subclass is indented under subclass 70. Subject matter wherein the type-face* elements are mounted on type-bar* members, and wherein the programmed-control-systems* includes an auxiliary-record-program* that is directly linked to means for actuating the type-bars for selection of the type-faces to be impressed against the record-medium*, or is directly linked to a case-shift* mechanism for choice of the upper-case* or lower-case* form of the type-face to be impressed against the record-medium.

(1) Note. In the typewriter of this subclass a plurality of type-bars are used, each type-bar carrying usually two type-faces thereon, one type-face for upper-case and another type-face for lower-case character. Also the typewriter of this subclass does not use an electrical "reader" of the program for converting the program to signals that cause actuation of the type-faces, but instead, this

typewriter actuates the typefaces directly from the program.

76 INCLUDING CONTROL OF FORMAT BY PROGRAMMED-CONTROL-SYSTEM:

This subclass is indented under the class definition. Subject matter wherein a programmed-control-system* governs the operation of a typewriter so as to control the format of the text to be imprinted on a record-medium*.

(1) Note. The term "format" is discussed in (1) Note of subclass 61, above.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61, for control of format and selection of type-face* by a programmed-control-system.

77 TYPEWRITER CONTROLS OTHER INFORMATION RECORDER:

This subclass is indented under the class definition. Subject matter wherein a first typewriter is capable of operation of imprint character* symbols on a record-medium*, and wherein another machine is capable of operation to imprint character symbols or to form indicia on the same or on another record-medium, and wherein operation of the first typewriter concurrently influences the operation of the other machine.

(1) Note. The other machine may be a printing machine, an accounting machine, a card-punch machine, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

71, for a typewriter that controls another typewriter.

78 Typewriter controls apparatus used for accounting function:

This subclass is indented under subclass 77. Subject matter wherein the other machine influenced by the first typewriter is a machine which prints indicia on a Record-Medium*, said indicia resulting from a mathematical computation.

SEE OR SEARCH CLASS:

235, Registers, for a mechanical device or a record controlled system for performing a mathematical computation.

705, Data Processing: Financial, Business Practice, Management, or Cost/price Determination, subclasses 30+ for an electrical data processing accounting system.

79 And a tape-punch or card-punch apparatus:

This subclass is indented under subclass 78. Subject matter wherein operation of the first typewriter also concurrently influences a machine for providing indicia in the form of apertures in a sheet or web of material.

(1) Note. A sheet is a relatively thin piece of material having determinate width and determinate length. A web is a relatively thin piece of material having determinate width and indeterminate length. A card is a sheet that is slightly thicker than a sheet and therefore stiffer than a sheet.

80 Typewriter (e.g., output typewriter) controls tape-punch or card-punch apparatus:

This subclass is indented under subclass 77. Subject matter wherein the other machine influenced by the first typewriter is for providing indicia in the form of apertures in a sheet or web of material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

62, for an "input-output" typewriter.

81 And imprints the character represented by the punched code on the tape or card:

This subclass is indented under subclass 80. Subject matter wherein the apertures denote character* symbols and wherein provision is made for imprinting the character symbols denoted by the apertures on the web or sheet.

82 INCLUDING PLURAL, INDEPENDENTLY SUPPORTED KEY-BOARDS, PLATENS, OR TYPE-SET-ASSEMBLAGES:

This subclass is indented under the class definition. Subject matter wherein there is provided more than one key-board* mounted separate from each other, or there is provided more than

one platen* mounted separate from each other, or there is provided more than one type-set-assemblage* mounted separate from each other.

SEE OR SEARCH THIS CLASS, SUBCLASS:
353, for a typewriter having an auxiliary carriage*.
585, for a typewriter having a divided platen.

83 DISPLAYING TYPEWRITER-FORMED REPRESENTATION OF PRINT-LINE:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to the showing to the typist or another person a visible expression or designation of the character* symbols that are to be or are being imprinted on a record-medium* as a print-line*.

84 By projecting typed image on screen:
This subclass is indented under subclass 83. Subject matter wherein the visible expression or designation is cast or exhibited by way of an optical system that includes a surface on which the likeness of the print-line* on the record-medium* is visible.

85 Including transparent or translucent record-medium:
This subclass is indented under subclass 84. Subject matter wherein the record-medium* enables passage of light there-through, and the light is transmitted by said optical system onto said surface to exhibit the print-line*.

86 OPERATING BY SOUND:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter responsive to the sound of the human voice to perform typing operations.

87 FOR OPERATION BY A HANDICAPPED USER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter intended to be operated by a typist whose physical capacities are limited.

SEE OR SEARCH THIS CLASS, SUBCLASS:
475, for a typewriter wherein some functions are foot actuated.

88 POCKET TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter that is sufficiently small to be carried on the person of a user within a pocket or handbag.

89 KEY REASSIGNMENT:
This subclass is indented under the class definition. Subject matter which changes the relationship between the key designation and the printed character.

(1) Note. The term key designation includes either a change in actuated printing element or key designator (e.g., mask or overlay).

SEE OR SEARCH CLASS:
380, Cryptography, subclass 51 and 55 for a cryptos:graphic typewriter.

90 Electrically powered:
This subclass is indented under subclass 89. Subject matter wherein significance is attributed to a typewriter that is operated with the help of electricity.

SEE OR SEARCH CLASS:
380, Cryptography, subclass 55 for an electrical cryptos:graphic typewriter.

91 STENOGRAPHIC TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter intended to be used while typing in “shorthand” or stenos:graphically.

(1) Note. Various terms are used in the art to refer to such a typewriter, including “shorthand”, “steno-typograph” and “tachygraphic”, and variations of such words. A typewriter capable of stenos:graphic operation has a distinctive appearance that is different from that of the usual typewriter. The keyboard* is arranged so that plural key* elements

are pressed simultaneously by the fingers of one or both hands of the typist, and the type-face* elements are impressed against the record-medium* simultaneously in groups. The imprinted character* symbols therefore appear in the record-medium in groups, and the record-medium, which is usually a relatively narrow strip of elongated material, is moved after each group of characters have been imprinted thereon. The stenotypist thus forms groups of characters in succession, each group corresponding to a syllable of a word*, thus the operation of such a typewriter can be rapid and can be used while recording a spoken conversation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

482, for a key-board specialized for use in a stenographic typewriter.

92 Using common-letter type-face:

This subclass is indented under subclass 91. Subject matter wherein the type-face* elements in the stenographic typewriter are of the form or in one of the Fonts* that is normal and usual in a typewriter.

93 Including plural type-faces mounted on carrier and movable for selection of type-face:

This subclass is indented under subclass 92. Subject matter wherein significance is attributed to the support for the type-bar* members, each of which carries at least one type-face* element, and the selection of two or more type-face elements to type a message stenographically.

94 Electrically powered:

This subclass is indented under subclass 91. Subject matter wherein significance is attributed to a stenographic typewriter that is operated with the help of electricity.

95 LOGOTYPE TYPEWRITER (E.G., WORD TYPING):

This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter in which one or more of the imprinting members is formed as an assemblage of type-face* or type-die* elements, each of which elements imprints simultaneously or in quick succession one with the others as if the assemblage was a single element, thus imprinting a plurality of character* symbols on the record-medium* by the one impression of the member.

(1) Note. The difference between this form of typewriter and a printing machine proper for Class 101 is discussed in section IV of the definition of this class (400), under the note to Class 101 in (1) note of section IV.

96 Including date-stamp type-face:

This subclass is indented under subclass 95. Subject matter wherein at least one of the imprinting members is a typeface* or an assemblage of type-face elements that form character* symbols representing the name or number of a month or day or year.

97 Including signature type-face:

This subclass is indented under subclass 95. Subject matter wherein at least one of the imprinting members is a typeface* or an assemblage of type-face elements that form character* symbols representing a person's name as written by that person.

98 Actuation of single key types plural characters:

This subclass is indented under subclass 95. Subject matter wherein depression of one key* element by a typist will effect the impressing of more than one type-face* element onto a record-medium*

(1) Note. In this subclass separate type-face elements imprint corresponding character* symbols in quick succession when a single key is depressed.

99 Characters typed simultaneously:

This subclass is indented under subclass 98. Subject matter wherein depression of one key* element will effect the impressing of more than one type-face* element onto a record-medium* at the same time.

100 PLURAL-KEY-ACTUATED TYPEWRITER (E.G., PERMUTATIVE KEYBOARD):

This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter in which a single type-face* element is caused to be impressed against a record-medium* to imprint a single character* symbol, the actuation of said single type-face being initiated or powered by the pressing of a plurality of key* elements on the key-board*.

(1) Note. As discussed in the definitions of character, key, and type-member* in the glossary, section III, most typewriters are provided with a mechanism whereby a single key element is selected by a typist and pressed to cause a single type-face to be impressed against a record-medium to imprint a single character on the record-medium. In a typewriter of this and indented subclasses a plurality of key elements are pressed by the typist to imprint a single character on the record-medium. This typewriter uses a "permutative" mechanism in the key-lever linkage and the type-bar* or type-head* action linkage which changes the linkages and enables a particular selection of pressed key elements to imprint a selected character and enables another particular selection of pressed key elements to imprint another selected character.

SEE OR SEARCH THIS CLASS, SUBCLASS:

472, for a key-board in a standard typewriter.

101 Having type-faces disposed on pivotable type-bars:

This subclass is indented under subclass 100. Subject matter wherein a type-face* element is carried by a type-bar* member that is mounted to be moved in an arcuate path as the type-bar moves from a rest position to a print-point* position.

102 Having type-faces disposed on rotatable type-head:

This subclass is indented under subclass 100. Subject matter wherein a type-face* element is carried by a type-head* element that turns about an axis while the typeface that is to be selected or chosen is moved to a position where the type-face will be impressed against the record-medium*.

103 CODE-PRINTING TYPEWRITER (E.G., FOR PRINTING A PATTERN OR MARK):

This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter that is capable of imprinting a mark or spot of ink* on a record-medium*, the imprint of a succession of such marks or spots forming a particular coded pattern.

(1) Note. A typewriter of this and indented subclasses may be capable of imprinting a succession of character* symbols that together from an intelligible text, but this typewriter is also capable of imprinting a pattern that is sensed or "read" by another machine or a pattern that forms a picture to a human's eye. In some instances the pattern embodies a sequence of number digits, but the digits represent a pattern of indicia or signs rather than a numerical value.

104 For typing and encoding:

This subclass is indented under subclass 103. Subject matter wherein the typewriter is capable of imprinting in a normal or usual English Alphabet as well as capable of imprinting a mark or spot of ink* on the record-medium*.

105 Including magnetic encoding:

This subclass is indented under subclass 104. Subject matter wherein the mark or spot of ink* that is imprinted is in the form of ferrous particles capable of being oriented or reoriented by magnetism, or is in the form of ink containing such ferrous particles.

106 Including coded ink (e.g., phosphorescent or color-coded ink, etc.):
This subclass is indented under subclass 103. Subject matter wherein the mark or spot of ink* is characterized by having a particular color or pigment or chemical composition, any of which characteristics is significant in determining the coded pattern that is desired.

107 For coding by conductive mark:
This subclass is indented under subclass 103. Subject matter wherein the mark or spot or ink* that forms part of the coded pattern is capable of conducting a current of electricity.

108 For marking laundry:
This subclass is indented under subclass 103. Subject matter wherein significance is attributed to the imprinting of a mark or spot of ink* on an article of apparel that is to be washed.

109 FOREIGN-LANGUAGE TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter that is capable of imprinting character* symbols in an alphabet other than the standard English alphabet.

(1) Note. The standard "English" alphabet is one that is derived from the Roman or Latin alphabet, and therefore is common to languages used in many European countries, including most of the western European countries. This and indented subclasses provide for a typewriter capable of typing in such alphabets as Cryllic (e.g., for Russian, Bulgarian or Serbian), Semitic (e.g., Arabic, Hebrew), Greek, Medieval German, etc., or is capable of typing such oriental languages as Chinese, Japanese, etc., the enumeration being only exemplary.

SEE OR SEARCH THIS CLASS, SUBCLASS:
484, for a key-board* specialized for use in a foreign-language typewriter.

109.1 Braille:
This subclass is indented under subclass 109. Subject matter wherein the character* symbols are embossed in the record-medium* so as to be discerned by tactile sensation.

(1) Note. The typewriter of this subclass usually forms a character* in the form of a pattern of embossments, each different pattern representing a different letter or number or other symbol. A trained blind person feels the different patterns with his/her fingers and so "reads" the character*s that form the text.

SEE OR SEARCH THIS CLASS, SUBCLASS:
483, for a key-board* intended for use in a "Braille" typewriter.

110 Including oriental language:
This subclass is indented under subclass 109. Subject matter wherein the typewriter is capable of imprinting character* symbols used in an oriental language.

(1) Note. An "Oriental" language is one that is used by the inhabitants of Asia. Such languages as Chinese, Japanese, Burmese, etc. are examples of Oriental languages.

111 Including semitic language:
This subclass is indented under subclass 109. Subject matter wherein the typewriter is capable of imprinting character* symbols used in a Semitic language.

(1) Note. A "Semitic" language is one that is used by such people as Arabs and Hebrews. It is characterized by being written and read from right to left.

112 ANNULAR TYPEWRITER (E.G., FOR TYPING AROUND CIRCUMFERENCE OF PLATEN):
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter having a cylindrical or partially cylindrical platen* for supporting or backing a record-medium* in which typewriter character* symbols are imprinted on the record-medium in such manner that each successively imprinted character in a direction extending around the periphery of the platen.

(1) Note. Successive characters may be imprinted in a helical arrangement around the periphery, thus requiring no

mechanism for line-space* distances, or the platen may be moved axially between successive print-line* typing, thus producing line-spaces.

113 Including vertically disposed platen:
This subclass is indented under subclass 112. Subject matter wherein said platen* turns about an axis during use of the typewriter, and wherein said axis extends upwardly relative to the typewriter.

(1) Note. The turning of the platen is in increments corresponding to character-space* distances and may be rotated in one direction for a cylindrical platen or be rotated by increments followed by oscillation in a return direction for a partially cylindrical platen.

114 Platen axis horizontal and extending front-to-rear:
This subclass is indented under subclass 112. Subject matter wherein said platen* turns about an axis that is disposed to be parallel to the base of the typewriter and parallel to the sides of the typewriter.

115 Power actuated:
This subclass is indented under subclass 112. Subject matter wherein one or more mechanisms of the typewriter is/are driven with the help of energy derived from a source other than the energy of the typist.

116 MUSIC-ROLL OR MUSICAL-NOTATION TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter capable of imprinting character* symbols on a music roll, or capable of imprinting character symbols representing the notes used for indicating the signs and tones of a musical composition.

(1) Note. A "music roll" is a web of record-medium* having holes therein, the holes controlling the playing of a "player piano". In the typewriter of this subclass the music roll is also imprinted with the words of the song being played on the player piano, so that a user may sing along with the music being played.

117 Musical-notation typewriter:
This subclass is indented under subclass 110. Subject matter wherein significance is attributed to a typewriter capable of imprinting character* symbols representing the notes used for indicating the signs and tones of a musical composition.

118.1 TYPING BY HEATED DIE:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter in which character* symbols are successively imprinted or formed in or on a surface of a record-medium* by applying a piece of metal having a form (image) therein directly against said record-medium* and heating said metal to thereby provide the image on the record-medium*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
120.01+, for apparatus for recording utilizing heat applied indirectly to the record-medium*.

118.2 TYPING BY OTHER THAN TYPE-FACE OR TYPE-DIE:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter in which character* symbols are successively imprinted or formed on a surface of a record-medium* by forming the character* portion by portion.

SEE OR SEARCH CLASS:
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 467-472.3 for character or font generation and display.
358, Facsimile and Static Presentation Processing, subclasses 1.1 through 1.18 for processing of data for presentation to the print-head.
715, Data Processing: Presentation Processing of Document, appropriate subclasses for document processing performed by a computer for presentation.

118.3 Electroconductive transfer:
This subclass is indented under subclass 118.2. Subject matter wherein a recording means conducts current through a resistive layer of the record-medium* or an ink* carrier for generating heat to produce a record upon the record-medium* by the reason of the medium becoming scorched, burned, marked, or otherwise thermochemically changed.

120.01 Thermal:
This subclass is indented under subclass 118.2. Subject matter wherein a recording means, due to its being in a heated condition, produces a record upon the record-medium* as by reason of the medium becoming scorched, burned, marked, or otherwise thermochemically changed.

120.02 Multicolor:
This subclass is indented under subclass 120.01. Subject matter wherein the record produced is polychromatic.

120.03 Having multilayered colored transfer material:
This subclass is indented under subclass 120.02. Subject matter including an ink* carrier comprising stratified strips, each with a different chromatic ink*.

120.04 Having single layer colored transfer material:
This subclass is indented under subclass 120.02. Subject matter including an ink* carrier consisting of a single strip having plural regions, each having a different chromatic ink*.

120.05 Block driving:
This subclass is indented under subclass 120.01. Subject matter wherein the recording means comprises recording elements grouped into sections capable of being selectively energized.

120.06 Sequentially:
This subclass is indented under subclass 120.05. Subject matter in which at least two of the sections are energized alternately.

120.07 Gradational recording:
This subclass is indented under subclass 120.01. Subject matter wherein the shading of the produced record varies.

120.08 Preheating:
This subclass is indented under subclass 120.01. Subject matter wherein the recording means, record-medium*, or ink*-carrier is warmed-up prior to recording.

120.09 Density control:
This subclass is indented under subclass 120.01. Subject matter comprising a regulating means for controlling the amount of energy supplied to the recording means to maintain a uniform output on the record.

120.1 By number of heated recording elements:
This subclass is indented under subclass 120.09. Subject matter wherein the regulating means controls the amount of energy supplied to selected recording elements based on a number of recording elements being simultaneously energized.

120.11 In accordance with output characteristic of recording elements:
This subclass is indented under subclass 120.09. Subject matter wherein the regulating means responds to variations in resistance values of heat radiating resistor elements constituting recording elements of the recording means.

120.12 By voltage regulation:
This subclass is indented under subclass 120.09. Subject matter wherein the regulating means responds to changes in electrical potential across a heating element used for heating the recording means.

120.13 By transfer material or record receiver:
This subclass is indented under subclass 120.09. Subject matter wherein the regulating means is responsive to a parameter associated with the ink* carrier, the ink*, or the record-medium*.

(1) Note. Examples of the parameter are: the thickness of the ink* carrier, the thickness of the paper, the volatility of the ink*, etc.

120.14 In accordance with temperature of the recording means:
This subclass is indented under subclass 120.09. Subject matter wherein the regulating means responds to variations in temperature of the recording means.

120.15 By history of recording elements:
This subclass is indented under subclass 120.09. Subject matter wherein the regulating means responds to the amount of energy supplied to a particular recording element during its previous use.

120.16 Recording means support or actuator:
This subclass is indented under subclass 120.01. Subject matter comprising a mechanism for holding or moving the recording means from an operative position in which the recording means is pressed against the record-medium* to an inoperative position in which the recording means is released from pressing engagement with the record-medium*.

120.17 Adjustable:
This subclass is indented under subclass 120.16. Subject matter comprising means for selectively varying pressure applying the recording means against the record-medium*.

120.18 Pre- or post-image recording treatment:
This subclass is indented under subclass 120.01. Subject matter comprising fixing or fusing means for applying substances, energy, or pressure upon the record-medium* or the record.

124.01 Character formation by impact (e.g., wire matrix):
This subclass is indented under subclass 118.2. Subject matter wherein the character* symbol is formed on the record-medium by percussing two or more discrete elements (i.e., impact members) arranged in a group by use of an actuator directly or indirectly against the record-medium*.

(1) Note. The discrete elements are arranged into the configuration of a selected character*, the same or different discrete elements being selectable to arrange such elements into the configuration of a different selected character*, wherein each of the discrete elements is a member that is movable from a rest position where it does not effect imprinting to an active position where it effects printing, and wherein the configuration of a selected character* symbol is formed by moving selected members from a rest position to an active position by energization of actuators in the printhead.

124.02 With signal conditioning:
This subclass is indented under subclass 124.01. Subject matter including an electrically powered actuator and means to modify the input power thereof (i.e., the signal) to control operating parameters of the actuator.

(1) Note. These parameters include: length of actuation, strength of actuation, and exact time of actuation.

124.03 Overheat protection:
This subclass is indented under subclass 124.02. Subject matter wherein the input power is modified to prevent excessive temperatures in the actuator.

SEE OR SEARCH THIS CLASS, SUBCLASS:
124.13, for details of the structure of the printhead which dissipates heat produced by the printhead.

124.04 Responsive to impact member position:
This subclass is indented under subclass 124.02. Subject matter wherein the input power is modified according to the location of the actuators along the print-line*.

124.05 Control of drive force:
This subclass is indented under subclass 124.02. Subject matter wherein the input power is modified in order to change the strength of the pressure applied by the impact member against the record-medium*.

124.06 Manifold form or plural copies:
This subclass is indented under subclass 124.05. Subject matter wherein the force which is applied to the record-medium* by the impact members is varied according to the number of sheets of the record-medium* being printed upon.

124.07 With wear or defect compensation:
This subclass is indented under subclass 124.02. Subject matter wherein impact member selection is determined so as to distribute even consumption thereof, or to offset broken or missing impact members.

124.08 Plural printheads:
This subclass is indented under subclass 124.01. Subject matter including more than one discrete groupings of impact members arranged along the print-line*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82, for typewriters which have more than one printhead, which may be more than one type of printhead.

124.09 Multicolor:
This subclass is indented under subclass 124.08. Subject matter wherein the character* symbol or successive character* symbols produced are polychromatic.

SEE OR SEARCH THIS CLASS, SUBCLASS:
120.02+, for thermal printers which print in multiple colors.
216.1, for ribbon* movement systems which are used in multicolor printers.
240+, for specifics of ribbon*s having multiple colors thereon.

124.1 With inking:
This subclass is indented under subclass 124.01. Subject matter wherein ink* is applied to the impact members prior to the impact members percussing the record-medium*.

(1) Note. This is generally done by providing a reservoir for ink* on the printhead, and the impact members are driven through or next to a pad which distributes the ink* onto the impact members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
470+, for structure which directly inks typefaces in a typewriter.

124.11 Printhead:
This subclass is indented under subclass 124.01. Subject matter including significant structure of the impact member, the actuators, or the housing therefor (i.e., the printhead).

124.12 Having assembly means:
This subclass is indented under subclass 124.11. Subject matter including structure for interconnecting portions of the printhead together or for connecting the printhead to a support.

SEE OR SEARCH CLASS:
29, Metal Working, various subclasses for methods of assembly of printheads.

124.13 Overheat protection:
This subclass is indented under subclass 124.11. Subject matter including cooling means.

(1) Note. This subclass is limited to patents wherein the printhead has structure for transferring heat therefrom, e.g., fins, fluid flow means, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
124.03, for ways of controlling the power to the printhead to reduce heat buildup.

124.14 With actuator:
This subclass is indented under subclass 124.11. Subject matter including significant structure of the means for applying percussing force to the impact members (i.e., the actuator).

(1) Note. Patents claiming a printhead having significant actuator structure are classified here.

124.15 Single actuator for simultaneous actuation of plural impact members:
This subclass is indented under subclass 124.14. Subject matter including means for concurrently percussing more than one impact member against the record-medium* by use of a single actuator.

124.16 Electrostrictive, magnetostrictive, or piezoelectric:

This subclass is indented under subclass 124.14. Subject matter wherein the percussive force is produced in the actuator by periodic deformation of a dielectric body as a result of an applied electric or magnetic field or electric voltage.

SEE OR SEARCH CLASS:

310, Electric Generator or Motor Structure, subclasses 311+ for specifics of general purpose piezoelectric actuators.

124.17 Actuator having electromagnet:

This subclass is indented under subclass 124.14. Subject matter wherein the means for producing the percussive force includes a looped conductor for conducting electrical current which produces a magnetic* field.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 209+, for details of specific electromagnet structure.

124.18 Electrical component:

This subclass is indented under subclass 124.17. Subject matter including significant structure to an electric circuit or any portion thereof for conducting electric current through the looped conductor.

(1) Note. The electromagnet is not considered to be a part of the "significant structure to an electric circuit" for purposes of classification in this subclass.

(2) Note. This subclass could include, for example, a printhead with an electromagnet having a particular electrical terminal or connector, etc.

124.19 Moving coil:

This subclass is indented under subclass 124.18. Subject matter wherein the looped conductor is displaceable relative to the housing responsive to the magnetic* field produced therein.

124.2 Permanent magnet:

This subclass is indented under subclass 124.18. Subject matter wherein the magnetic* field acts against the magnetic* field of a material which is magnetically polarized.

(1) Note. This does not include magnetic* fields which exist for a moving coil.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 229+ for general purpose electromagnets which include a permanent magnet.

124.21 With biasing means:

This subclass is indented under subclass 124.17. Subject matter including resilient means acting to move the impact members against the force exerted by the magnetic* field.

124.22 Backstop:

This subclass is indented under subclass 124.21. Subject matter including significant structure of means for halting movement of the actuator towards its rest position.

124.23 Armature structure or mounting:

This subclass is indented under subclass 124.17. Subject matter including significant structure of a movable portion of the electromagnet or support means therefor.

SEE OR SEARCH THIS CLASS, SUBCLASS:

124.31, for details of the attachment of an impact member to an electromagnetically driven actuator.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 270+ for details of mounting general purpose electromagnetic* actuators, and subclasses 279+ for structure of armatures used in general purpose electromagnets.

124.24 Impact member guide:
This subclass is indented under subclass 124.11. Subject matter including significant structure of means for directing the impact member towards the record-medium*.

124.25 With lubricator:
This subclass is indented under subclass 124.24. Subject matter including means for applying a friction reducing substance between the impact member and the directing means.

124.26 Specific material:
This subclass is indented under subclass 124.24. Subject matter wherein significance is attributed to the material which forms the directing means for the impact member.

124.27 Including shifting of guide:
This subclass is indented under subclass 124.24. Subject matter wherein the impact member directing means is movable relative to the housing or to a carriage* which supports the housing.

(1) Note. This is usually done in order to increase the density of output by shifting one set of impact members relative to another on the same printhead.

124.28 Impact member tip arrangement:
This subclass is indented under subclass 124.11. Subject matter wherein significance is attributed to the layout of the record-medium* contacting portion of the impact members within the housing.

(1) Note. To be in this subclass, the layout should be arranged in other than a straight line.

124.29 Impact member structure:
This subclass is indented under subclass 124.11. Subject matter including significant structure of the member which causes the impression on the record-medium*.

124.3 Tip cross-section:
This subclass is indented under subclass 124.29. Subject matter wherein significance is attributed to the shape of the portion of the impact member that impacts against the record-medium*.

(1) Note. This subclass does not include impact members which are uniformly circular.

124.31 With attachment or engagement means:
This subclass is indented under subclass 124.29. Subject matter including means for connecting or interfacing the impact member with an actuator.

(1) Note. This subclass includes caps which are formed on the impact members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
124.23, for details of an electromagnetically driven actuator.

124.32 Specific material:
This subclass is indented under subclass 124.29. Subject matter wherein significance is attributed to the material which forms the impact member.

(1) Note. This includes but is not limited to different materials for the impact tip as opposed to the remainder of the impact member.

127 TYPING TO PRODUCE EMBOSSED CHARACTER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter in which imprinting on a record-medium* is accomplished by a type-die* that contacts a surface of the record-medium and permanently deforms the surface to raise or lower the contacted surface relative to the uncontacted surface into a line representing a character*.

(1) Note. An example of the form of typing accomplished by the typewriter of this and indented subclasses is the making of a credit card or an address plate having letters and symbols raised above the surface of the card or plate.

128 Character embossed or typed on nonplanar article (e.g., golf ball, toothbrush, etc):
This subclass is indented under subclass 127. Subject matter wherein significance is attributed to the record-medium* that the typewriter

is typing on, the record-medium being an object having a shape or configuration that is other than flat, and wherein the type-die* permanently embosses a character* symbol in a surface of the object.

129 By type-die mounted on carrier movable for selection of character:
This subclass is indented under subclass 127. Subject matter wherein a typewriter is provided with a support for a multiplicity of type-die* elements for embossing the different character* symbols that the typewriter is capable of embossing, which support is enabled to be moved relative to the record-medium*, whereby any of the type-die elements may be selected to be impressed against the record-medium; and the selected type-die element may be impressed to emboss a character symbol on the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
138, for similar structure for mounting piercing type-die elements thereon.

130 Including programmed-control-system:
This subclass is indented under subclass 129. Subject matter wherein the selection of a type-die*, or the control of a function* of the typewriter, is governed by a programmed-control-system*.

131 Electrically powered:
This subclass is indented under subclass 129. Subject matter wherein electricity is used to energize selection of a type-die* or the operation of a function* of the typewriter.

132 Type-die reciprocable on carrier:
This subclass is indented under subclass 129. Subject matter wherein the selected type-die* element is moved to and fro relative to the support, the movement occurring for the purpose of impressing the selected type-die against the record-medium*.

133 On endless-band carrier:
This subclass is indented under subclass 129. Subject matter wherein the support for the type-die* elements is an elongated, closed-loop strip movable in the direction of its elongation, to select the type-die to be impressed against the record-medium*.

134 On rotatable carrier:
This subclass is indented under subclass 129. Subject matter wherein the support for the type-die* elements is a member that turns about an axis to select the type-die to be impressed against the record medium*.

134.1 Actuated by key-board control:
This subclass is indented under subclass 134. Subject matter wherein the type-die* element that is to be impressed against the record-medium* is selected by pressing a corresponding key* element located on a key-board*, the pressing of which key causes selection of type-die and movement of the selected type-die to the print-point*.

134.2 Including type-die movable relative to carrier:
This subclass is indented under subclass 134.1. Subject matter wherein the selected type-die* element moves to the print-point* with respect to its support and to the other type-die elements that are on the support.

134.3 With magazine for supply of record-medium plates:
This subclass is indented under subclass 134.2. Subject matter wherein the typewriter is provided with means for storing a quantity of record-medium* articles that are to be embossed, said means including a receptacle or container for storing the articles.

134.4 On manually held embosser:
This subclass is indented under subclass 134. Subject matter wherein the member that supports the type-die* elements is part of an instrumentality for embossing character* symbols one at a time in succession, which instrumentality is intended to be grasped in a hand of a user and operated while so grasped.

134.5 Including web supply of record-medium:
This subclass is indented under subclass 134.4. Subject matter wherein the instrumentality is provided with means for storing a quantity of record-medium* in the form of an indeterminate-length strip of material on which character* symbols are to be embossed.

134.6 Including web supply of record-medium:
This subclass is indented under subclass 134. Subject matter wherein the support for the type-die* elements is part of an instrumentality, which instrumentality is provided with means for storing a quantity of record-medium* in the form of an indeterminate-length strip of material on which character* symbols are to be embossed.

135 TYPING TO PRODUCE PIERCED CHARACTER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter in which imprinting on a record-medium* is accomplished by a type-die* that contacts a surface of the record-medium and cuts through that surface into the opposite surface to form one or more perforations in the surface, which perforations taken together represent a character*.

(1) Note. An example of the form of typing accomplished in the typewriter of this and indented subclasses is the writing of a bank check or money order representing an amount of money to be paid, the digits representing the amount being pierced or scarified into the surface of the check so that alteration of the check cannot be accomplished without visible indication of an attempt to alter the check.

136 Cutout character for stencil:
This subclass is indented under subclass 135. Subject matter wherein significance is attributed to the formation of a character* symbol by excising the record-medium* using type-die* elements that sever the record-medium to produce perforations therein, each perforation having an outline of a character symbol.

(1) Note. The record-medium so severed with cutout characters is used as a stencil by placing the stencil on surface and coating the stencil and surface with pigment. When the stencil is lifted from the surface, the pigmented areas on the surface will form the characters that have been cut out of the stencil record-medium.

137 Check-protection character:
This subclass is indented under subclass 135. Subject matter wherein significance is attributed to the formation or character* symbols on a form that directs a bank of financial institution to pay money, or a form that shows the amount of money to be paid for value received.

(1) Note. The significance of the particular form of character in the typewriter of this and indented subclasses is that such characters cannot be altered without detection; thus, the amount of money that the check represents will not be raised in value.

138 By type-die mounted on carrier movable for selection of character:
This subclass is indented under subclass 137. Subject matter+ wherein a typewriter is provided with a support for a multiplicity of type-die elements for piercing the different character* symbols that the typewriter is capable of piercing, which support is enabled to be moved relative to the record-medium* whereby any of the type-die elements may be selected to be impressed against the record-medium and the selected type-die element may be impressed to pierce a character symbol on the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
129, for similar structure for mounting embossing type-die elements thereon.

138.1 Electrically powered:
This subclass is indented under subclass 138. Subject matter wherein electricity is used to energize selection of type-die* or operation of a function* of the typewriter.

138.2 On rotatable carrier (e.g., for scarifying elements, etc.):
This subclass is indented under subclass 138. Subject matter wherein the support for the type-die elements is a member that turns about an axis to select the type-die to be impressed against the record-medium*.

(1) Note. In the typewriter of this subclass the type-die elements usually pierce one surface of the record-medium to roughen

that surface beyond a level where the surface may be made smooth again. The intent is not necessarily for the type-die to perforate both surfaces of the record-medium, but rather to scarify at least one surface.

138.3 Actuated by key-board control:
This subclass is indented under subclass 138.2. Subject matter wherein the type-die* element that is to be impressed against the record-medium* is selected by pressing a corresponding key* element located on a key-board*, the pressing of which key causes selection of a type-die and movement of the selected type-die to the print-point*.

138.4 Including plural-character type-die:
This subclass is indented under subclass 138.2. Subject matter wherein at least one of the type-die* elements is constructed so as to have type-dies representing or corresponding to more than one character* symbol, whereby when one of such elements is impressed against the record-medium*, a plurality of character symbols will be formed in the record-medium.

(1) Note. The typewriter of this subclass usually imprints an amount of money spelled in letter symbols rather than numeral symbols.

138.5 And rotating contact with platen:
This subclass is indented under subclass 138.4. Subject matter wherein the type-die* elements turn about an axis while being impressed against the record-medium* that is backed up by a platen*.

138.6 For type-die including piercing or cutting elements:
This subclass is indented under subclass 138.2. Subject matter wherein the type-die* elements include slender elements, each having a sharp point at one end, or include elements, each having a sharp edge, which sharp point or edges penetrate through both opposite surfaces of the record-medium* as the type-die impacts the record-medium.

139 INCLUDING TYPE-SET-ASSEMBLAGE MOUNTED ON CARRIER AND RELATIVELY MOVABLE FOR SELECTION AND FOR IMPACT OF TYPE-FACE:
This subclass is indented under the class definition. Subject matter wherein a typewriter is provided with a type-head-carrier* or with a type-face-carrier*, either of which carriers supports a type-set-assemblage* for movement of the type-face* elements thereon relative to the record-medium*, whereby any of the type-face elements may be selected or chosen to be impressed against a record-medium and the selected or chosen type-face element may be impressed to imprint a character* symbol.

(1) Note. The definition of type-head- carrier in the Glossary, section III, discusses the difference between a type-head-carrier and a type-face-carrier. Briefly, a type-head-carrier supports a type-head* wherein all type-faces are integral one with the others, whereas a type-face-carrier supports type-faces that are movable, one with respect to the others. The difference between “selected” and “chosen” is also discussed in the Glossary under the definition of case-shift* and other definitions. Briefly, a particular type-face is selected from among the many available from a type-set-assemblage whereas an upper-case* form of letter (as distinguished from a lower-case* form of the same letter) is chosen from the forms available on one key* element.

(2) Note. In some typewriters movement of the selected or chosen type-face for impact is a relative movement; that is, in these typewriters the platen* (and the record-medium supported thereby) are moved toward the selected or chosen type-face, whereas in most typewriters the type-face moves toward the platen.

(3) Note. The definition of type-bar-segment* discusses the differencebetween a type-bar-segment and a type-face-carrier. Briefly, a type-bar-segment supports a type-set assemblage for case-shift movement (i.e., choice of upper-case or lower-case), whereas a type-face-carrier supports a type-set- assemblage for selection of type-face from among many

type-faces as well as for choice of upper-case or lower-case.

140 Including type-faces movable relative to type-face-carrier:
This subclass is indented under subclass 139. Subject matter wherein a typewriter is provided with a type-face-carrier* that supports a type-set-assemblage* comprising a plurality of separate type-face* elements, and wherein the typewriter is also provided with a mechanism for selecting or choosing the particular type-face that is to be impressed against the record-medium* and with a mechanism for moving said type-face toward the print-point*.

(1) Note. In this and indented subclasses the term type-face may include, for example, an element carrying both the upper-case* and lower-case* forms of the same letter, and both forms on the same element are moved together, although only the chosen form of the letter is impressed against the record-medium. The relative movement referred to is that which moves the element for the selected letter away from the other type-face elements of a type-set-assemblage and toward the print-point.

141 Slidable type-faces mounted on reciprocable carrier:
This subclass is indented under subclass 140. Subject matter wherein the type-face-carrier* supports a plurality of type-face* elements each of which elements may be reciprocated relative to the type-face-carrier, and wherein the type-face-carrier may be reciprocated relative to the typewriter.

(1) Note. The direction of reciprocation of the type-face elements is usually perpendicular to the direction of reciprocation of the type-face-carrier.

141.1 On rotatable or oscillatable carrier reciprocable along its axis:
This subclass is indented under subclass 141. Subject matter wherein the type-face-carrier* may be reciprocated relative to the typewriter and may also be turned in one direction of to-and-fro in opposite directions about an axis of turning, and wherein the reciprocation of the type-face carrier is along a line that coincides with said axis of turning.

142 Slidable type-faces on rotatable carrier:
This subclass is indented under subclass 140. Subject matter wherein the type-face-carrier* supports a plurality of type-face* elements each of which elements may be reciprocated relative to the type-face-carrier, and wherein the type-face-carrier may be turned on an axis relative to the typewriter.

143 Rotatable type-face-carrier including type-faces on pivotable arms:
This subclass is indented under subclass 140. Subject matter wherein the type-face-carrier* supports a plurality of members, each of which members is oscillatable to and fro on its own axis, and each of which members supports one of the type-face* elements of a type-set-assemblage*, and wherein the type-face-carrier may be turned on an axis relative to the typewriter.

(1) Note. Usually the members (i.e., pivotable arms) extend in a direction parallel to the axis of the type-face-carrier and pivot in a direction extending radially of the axis.

144 Type-face-carrier including type-faces on flexible arms:
This subclass is indented under subclass 140. Subject matter wherein the type-face-carrier* supports a plurality of members, each of which members is resilient and oscillatable to and fro relative to the carrier, and each of which members supports one of the type-face* elements of a type-set-assemblage*.

144.1 Rotatable or oscillatable carrier:
This subclass is indented under subclass 144. Subject matter wherein the type-face-carrier* may be turned relative to the typewriter either in one direction or to and fro in opposite directions about an axis of turning, thereby to turn the plurality of members and type-face* elements relative to the typewriter.

144.2 Carrier having coplanar flexible arms (e.g., "daisy" wheel, etc.):
This subclass is indented under subclass 144.1. Subject matter wherein the type-face carrier* includes the plurality of resilient members, and wherein the members extend radially from the

axis of the carrier in substantially the same plane, and each member, and the type-face* element supported thereby, oscillates in a second plane that is coincident with said axis.

(1) Note. The term "daisy" wheel has been applied to this form of type-set- assemblage* and carrier due to its resemblance to a daisy.

144.3 Continuously rotated carrier:
This subclass is indented under subclass 144.2. Subject matter wherein the type-face-carrier* turns in one direction without stopping during the typing operation of the typewriter.

144.4 Manually rotated carrier:
This subclass is indented under subclass 144.2. Subject matter wherein the type-face-carrier* turns by power applied directly by the typist to the carrier.

145 Type-faces on deformable type-face-carrier:
This subclass is indented under subclass 140. Subject matter wherein the type-face-carrier* is made of a material that is resilient and supports a plurality of type-face* elements thereon, and wherein the selected or chosen type-face is yieldably displaced relative to the type-faces remaining in the type-set-assemblage* and the displaced type-face is impressed against the record-medium*.

145.1 Rotatable carrier:
This subclass is indented under subclass 145. Subject matter wherein the type-face-carrier* may be turned on an axis relative to the typewriter.

145.2 Cylindrical carrier:
This subclass is indented under subclass 145.1. Subject matter wherein the type-face-carrier* has the configuration of a cylinder or a cylindroid.

SEE OR SEARCH THIS CLASS, SUBCLASS:
152, for a type drum having a cylindrical appearance.

146 Including endless-band carrier for type-faces:
This subclass is indented under subclass 139. Subject matter wherein a typewriter is provided with a member that supports a type-set-assemblage* for movement of the type-face* elements therewith relative to the typewriter, which member is an elongated, closed-loop strip trained around two or more pulleys and movable in the direction of its elongation to select or choose the type-face to be impressed, and which type-face elements are moved with the strip in a direction substantially perpendicular to the elongation toward the record-medium* to impress the type-face against the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
134, for an endless-band type-face-carrier* in an embossing typewriter.

147 Type-faces arranged in rectilinear row and selected by reciprocable movement:
This subclass is indented under subclass 139. Subject matter wherein a typewriter is provided with a member that supports a type-set-assemblage* for movement of the type-face* elements therewith relative to the typewriter, which member may be reciprocated along a first straight line for selection or choice of the type-face elements thereon, and on which member the type-face elements are supported in a second straight line that is parallel to said first straight line.

(1) Note. The reciprocating movement defined above is that which is needed for selection of choice of a type-face. There may also be another movement, for example, a pivoting motion toward the record-medium*, imparted to the member for impressing the type-face against the record-medium.

148 On rotatable carrier having plural rectilinear rows:
This subclass is indented under subclass 147. Subject matter wherein the member is reciprocated along said first straight line and also may be turned about an axis that is parallel to said first straight line, and on which member two or more sets of type-face* elements are sup-

ported, each set in a straight line parallel to said first straight line.

(1) Note. Each set of type-face elements defined above may comprise all or part of a type-set-assemblage*, or may comprise upper-case* or lower-case* forms of the same letter, or may comprise type-set-assemblage having different font* assortments of type-faces. The rotation of the member enables selection or choice from among the type-faces of different sets of type-faces.

149 Plural type-heads mounted for selective individual type-head-imprinting movement:
This subclass is indented under subclass 139. Subject matter wherein a typewriter is provided with two or more typehead* elements that are supported on the typewriter to enable motion of each of the typeheads toward the print-point* of the typewriter separately from the other(s) to imprint the selected or chosen type-face* element on the record-medium*.

150 Type-heads arranged for selective individual imprinting movement away from coaxial rest position:
This subclass is indented under subclass 149. Subject matter wherein each of the type-head* elements is supported for rotation on its own axis of rotation and each of the type-heads may be moved toward the print-point* of the typewriter separately from the other(s) to imprint the selected or chosen type-face* element on the record-medium* and wherein all of the axes of rotation of all the type-head elements are normally in the same line, the selected type-head being moved away from said line when it is moved toward the print-point.

151 Turret carrier for type-heads:
This subclass is indented under subclass 149. Subject matter wherein the type-head* elements are each supported on a platform or member, which platform or member is capable of rotation about an axis of rotation, and each of the type-head elements being capable of separate movement toward the print-point* of the typewriter.

151.1 Axis of turret carrier parallel to platen axis:
This subclass is indented under subclass 151. Subject matter wherein the print-point* is located on or adjacent to the platen* of the typewriter, which platen is rotatable about an axis, and wherein the axis of rotation of said platform is parallel to the axis of rotation of the platen.

152 Type drum having multiple type-set-assemblages:
This subclass is indented under subclass 139. Subject matter wherein the typewriter is provided with a member that is (a) cylindrical or cylindroidal, (b) rotatable about an axis that extends through the cylinder parallel to the circumference of the cylinder, and (c) supporting a plurality of type-set-assemblage* groups of type-face* elements on the circumference of the cylinder.

(1) Note. Usually the type drum extends in length to substantially the full width of the record-medium* and each of the type-set-assemblages extends around the circumference of the type drum. The number of type-set-assemblages provided on the type drum corresponds to the number of character* symbols and character-space* distances that may be included within the width of the record-medium. Selection of type-face for the first character of a print-line* is made from the first type-set-assemblage and selection of the second character of that print-line is made from the next adjacent type-set-assemblage, the action being repeated until the entire print-line has been imprinted.

SEE OR SEARCH THIS CLASS, SUBCLASS:
145.2, for a cylindrical, deformable type-face-carrier*.

153 Imprint by movement of record-medium against type-face:
This subclass is indented under subclass 139. Subject matter wherein the relative movement between a selected or chosen type-face* and the record-medium* occurs as result of the record-medium being moved to the type-face

for imprint of a character* symbol on the record-medium.

154 By hammer impacting record-medium against type-face on type-head (e.g., type shuttle, etc.):
This subclass is indented under subclass 153. Subject matter wherein the record-medium* is moved to a type-face* that is supported by a type-head* by means of a striking member that imparts to the record-medium a sudden movement toward the selected or chosen type-face.

154.1 Including selection of type-face:
This subclass is indented under subclass 154. Subject matter wherein the typewriter is provided with mechanism for selecting or choosing the particular type-face* that is to be impressed against the record-medium* by the movement of the record-medium toward the type-face.

SEE OR SEARCH THIS CLASS, SUBCLASS:
161.1, for selecting mechanism on a typewriter having a type-head* movable for imprinting.

154.2 Via pulley and cord arrangement (e.g., summing displacements):
This subclass is indented under subclass 154.1. Subject matter wherein said selecting mechanism includes an elongated, flexible element trained around a plurality of rotatable wheels, the mechanism being connected to a type-head* that supports the type-face* elements.

154.3 By shortest peripheral path:
This subclass is indented under subclass 154.1. Subject matter wherein the typewriter is provided with a type-head* having a cylindroidal or spheroidal surface having the type-face* elements of a type-set-assemblage* thereon, which type-head is normally in a particular rest position and is moved to a second position at which the selected or chosen type-face will be impressed against the record-medium*, and wherein significance is attributed to movement of the type-head that results in the least amount of type-head movement as it moves from the rest position to the second position.

154.4 Via coded disc in electric or magnetic circuit (e.g., photoelectric):
This subclass is indented under subclass 154.1. Subject matter . wherein said selecting mechanism, includes one or more circular plates, each plate being rotatable to a position where particular index characteristics on the plate(s) are related to an arrangement within the mechanism that causes completion of an electrical or magnetic circuit, the completion of the circuit effecting selection or choice of the type-face* desired by the typist.

(1) Note. The index characteristics may be, for example, notches or apertures in the discs, which permit passage of a beam of light that actuates a photoelectric cell when the notches or apertures in several discs are aligned, or may be magnetic code in one or more discs, which completes a circuit when proper alignment of the code disc(s) is accomplished.

154.5 Via stepping motor responsive to selection:
This subclass is indented under subclass 154.1. Subject matter wherein said selecting mechanism includes an electric motor that rotates incrementally, the rotation being caused by the selection or choice of a type-face* and the motor being connected to a type-head* that supports the type-face elements.

155 Via electrical or electromagnetic means:
This subclass is indented under subclass 154.1. Subject matter wherein said selecting mechanism includes an electrical circuit or an electromagnetic device connected to a type-head* that supports the type-face* elements.

(1) Note. The mechanism or circuit for this subclass may include a commutator, a solenoid, an electromagnetic coil, an induction coil, or other similar device used in the selection or choice of a type-face.

155.1 Including plural-function actuation by electromagnet(s):
This subclass is indented under subclass 155. Subject matter wherein said selecting mechanism includes an electromagnet powered by an electrical current, and wherein the typewriter includes mechanism for performing at least one

other function*, which function is energized by either the same electromagnet that energizes the selecting mechanism or by a different electromagnet powered by an electrical current.

156 Via helical arrangement of projections:
This subclass is indented under subclass 154.1. Subject matter wherein said selecting mechanism includes a rotatable cylindroidal member having elements on the cylindrical surface thereof that protrude from the surface, which elements are arranged to form a helix on the cylindrical surface and which elements engage portions of the selecting mechanism to connect the mechanism to a type-head* that supports the type-face* elements.

156.1 Via mechanically permutated bar(s), disc(s), or plate(s):
This subclass is indented under subclass 154.1. Subject matter wherein said selecting mechanism includes one or more members, each member being either (a) an elongated component that is movable along its length, or (b) a circular component that is rotatable, or (c) a flat and relatively thin component that is movable in a plane parallel to its width and length dimensions, and also having particular index characteristics on the member, which member(s) is/are moved to a position relative to an arrangement within the mechanism where the index characteristics are aligned to enable movement of another component of the mechanism to effect selection or choice of the type-face* desired by the typist.

156.2 Via planetary gear arrangement:
This subclass is indented under subclass 154.1. Subject matter wherein said selecting mechanism includes a plurality of toothed wheels in mesh one with the other(s) and at least one rotating and revolving about another, while in mesh therewith, which assemblage of toothed wheels in connected to a type-head* that supports type-face* elements, one of which elements is to be selected or chosen for impression.

156.3 Including latch means:
This subclass is indented under subclass 156.2. Subject matter wherein the assemblage of toothed elements is provided with means to temporarily secure the toothed elements together until the selected or chosen type-face* has been impressed against the record-medium*.

157 Including type-faces arranged along helical path(s):
This subclass is indented under subclass 154. Subject matter wherein the typewriter is provided with a type-head* that is formed as a rotatable, cylindroidal member having type-face* elements on the cylindroidal surface thereof, which type-face elements are arrayed as a helix on the cylindroidal surface, and wherein selection or choice of the type-face that is to be impressed against the record-medium* is made from one of the helically arrayed elements.

(1) Note. The type-set-assemblage* of type-faces may be arranged in one or more helical paths.

157.1 Including particular structure of hammer(s):
This subclass is indented under subclass 154. Subject matter wherein significance is attributed to said striking member or the means for causing movement of, or supporting, said striking member.

157.2 Electromagnetically actuated:
This subclass is indented under subclass 157.1. Subject matter wherein the striking member is moved by a magnet that is powered by electricity.

157.3 For variable impression (e.g., impact control):
This subclass is indented under subclass 157.1. Subject matter wherein movement of the striking member is regulated as to its striking force, whereby the striking force can be changed as desired.

SEE OR SEARCH THIS CLASS, SUBCLASS:
116, for impact control in a typewriter wherein a type-head* moves toward the record-medium.

157.4 Hammer(s) mounted on endless belt or in helical array:
This subclass is indented under subclass 157.1. Subject matter wherein the striking member(s) is/are supported on an elongated, closed-loop

strip trained around two or more pulleys and movable in the direction of its elongation, or wherein the striking members are supported on a rotatable, cylindroidal component and are arranged in a helix around the circumference of said component.

158 Including platen for moving record-medium against type-face and mechanism for feeding record-medium:
This subclass is indented under subclass 153. Subject matter wherein the typewriter is provided with a platen* that is a backup for the record-medium* and is also provided with a mechanism for moving the record-medium in a line-space* direction, which platen also moves the record-medium toward the selected or chosen type-face* for imprint of a character* symbol on the record-medium.

(1) Note. In this subclass the record-medium is moved in a line-space direction by a mechanism other than the platen.

158.1 Including moving and feeding by platen:
This subclass is indented under subclass 158. Subject matter wherein the platen* also moves the record-medium* in a line-space* direction by rotation of the platen.

159 Including platen for moving record-medium against type-face and mechanism for inking type-face:
This subclass is indented under subclass 153. Subject matter wherein the typewriter is provided with a platen* that is a backup for the record-medium* and is also provided with a mechanism for applying ink* to the imprinting surface or line of a type-face*, which platen moves the record-medium toward the selected or chosen type-face for imprint of a character* symbol on the record-medium after said type-face has been inked.

160 Imprint by pivoting of type-head-carrier and type-head against record-medium:
This subclass is indented under subclass 139. Subject matter wherein the typewriter is provided with a type-head-carrier* that supports a type-head* for movement relative to said carrier so that any of the type-face* elements on the type-head may be selected or chosen to be impressed on the record-medium*, and wherein the type-head-carrier is supported for arcuate movement of said carrier toward the record-medium to imprint the corresponding character* symbol on the record-medium.

161 Type-head-carrier movable on movable carriage:
This subclass is indented under subclass 160. Subject matter wherein said type-head-carrier* is mounted on a carriage* to be arcuately movable toward the record-medium* to impress a selected or chosen type-face* against the record-medium, and wherein said carriage is movable to impart character-space* and word-space* distances to the carriage and the type-head-carrier that is mounted thereon.

161.1 Including selection of type-face (e.g., on "golf-ball" type-head):
This subclass is indented under subclass 161. Subject matter wherein the typewriter is provided with selecting mechanism for moving the type-head* relative to its type-head-carrier* to select or choose the particular type-face* that is to be impressed against the record-medium* by movement of the type-head toward the record-medium.

(1) Note. The term "golf-ball" type-head has been applied to the type-heads of this subclass because of the spheroidal configuration of the type-head elements found herein.

161.2 Via gear train:
This subclass is indented under subclass 161.1. Subject matter wherein said mechanism for selecting or choosing the particular type-face* is driven by an assemblage of toothed wheels or toothed members in mesh, one with the other(s), which assemblage is connected to a type-head* that supports type-face elements, one of which elements is to be selected or chosen for impression.

161.3 Gears mounted on type-head and type-head-carrier:
This subclass is indented under subclass 161.2. Subject matter wherein at least one of the toothed wheels is supported by, or integral with, the type-head* and at least another of the toothed wheels is supported by the type-head-carrier*.

161.4 Including gear (e.g., rack) reciprocated by transmission mechanism:

This subclass is indented under subclass 161.2. Subject matter wherein said toothed member moves to-and-fro in a straight line and is driven by an assemblage of elements that converts movement of various kinds into the straight line movement of the toothed member.

161.5 Via multiple cam surfaces:

This subclass is indented under subclass 161.1. Subject matter wherein said mechanism for selecting or choosing the particular type-face* is driven by a plurality of cam surfaces that are connected by way of cam surface followers to the type-head* that supports type-face elements, one of which elements is to be selected or chosen for impression.

(1) Note. A "cam surface" is defined as the edge periphery of a disc that rotates about an axis, the radial distance from the axis to the periphery varying around the periphery. As the disc rotates, the distance of a follower that is in contact with the periphery will increase and decrease relative to the axis of the disc, thus the rotation of the disc will effect substantially radial movement of the follower. The cam surfaces may be on separate disc elements or may be on a single member having separate cam surfaces.

162 Type-head movable for selection of type-face:

This subclass is indented under subclass 160. Subject matter wherein the typewriter is provided with selecting mechanism for moving the type-head* relatively to its type-head-carrier* to select or choose the particular type-face* that is to be impressed against the record-medium* by movement of the type-head toward the record-medium.

(1) Note. The difference between this subclass (162) and subclass 161.1 above is that in this subclass the type-head is movable for selection of the particular type-face, whereas in subclass 161.1 the type-head is mounted on a type-head-carrier that is movable toward the record-medium, and the type-head-carrier is mounted on a carriage* that is movable for character-space* distances.

SEE OR SEARCH THIS CLASS, SUBCLASS:

154.1, for selecting a mechanism in a typewriter having a hammer movable for imprinting.

161.1, and see (1) Note above.

162.1 Via pulley and cord arrangement:

This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes an elongated, flexible element trained around a plurality of rotatable wheels, the mechanism being connected to a type-head* that supports the type-face* elements.

162.2 Via shortest peripheral path:

This subclass is indented under subclass 162. Subject matter wherein the typewriter is provided with a type-head* having a cylindroidal or spheroidal surface having the type-face* elements of a type-set-assemblage* thereon, which type-head is normally in a particular rest position and is moved to a second position at which the selected or chosen type-face will be impressed against the record-medium*, and wherein significance is attributed to movement of the type-head that results in the least amount of type-head movement as it moves from the rest position to the second position.

162.3 Via coded disc in electric or magnetic circuit (e.g., photoelectric):

This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes one or more circular plates, each plate being rotatable to a position where particular index characteristics on the plate(s) are related to an arrangement within the mechanism that causes completion of an electrical or magnetic circuit, the completion of the circuit effecting selection or choice of the type-face* desired by the typist.

(1) Note. The index characteristics may be, for example, notches or apertures in the discs, which permit passage of a beam of light, that actuates a photoelectric cell when the notches or apertures in several discs are aligned, or may be a magnetic code in one or more discs, which com-

pletes a circuit when proper alignment of the code disc(s) is accomplished.

163 Via stepping motor responsive to selection:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes an electric motor that rotates incrementally, the rotation being caused by the selection or choice of a type-face* and the motor being connected to a type-head* that supports the type-face elements.

163.1 Via electrical or electromagnetic means:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes an electrical circuit or an electromagnetic device connected to a type-head* that supports the type-face* elements.

(1) Note. The mechanism or circuit for this subclass may include a commutator, a solenoid, an electromagnetic coil, an induction coil, or other similar device used in the selection or choice of a type-face.

163.2 Including electromagnetically actuated type-head movement toward record-medium:
This subclass is indented under subclass 163.1. Subject matter wherein said electromagnetic device causes the type-head* to be moved in the direction of the record-medium* in order to effect the imprint of the selected type-face* element.

163.3 Including plural-function actuation by electromagnet(s):
This subclass is indented under subclass 163.1. Subject matter wherein said selecting mechanism includes an electromagnet powered by an electrical current, and wherein the typewriter includes mechanism for performing at least one other function*, which function is energized by either the same electromagnet that energizes the selecting mechanism or by a different electromagnet powered by an electrical current.

164 Via helical arrangement of projections:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes a rotatable cylindroidal member having elements on the cylindrical surface thereof that protrude from the surface, which elements are arranged to form a helix on the cylindrical surface and which elements engage portions of the selecting mechanism to connect the mechanism to a type-head* that supports the type-face* elements.

164.1 Via pneumatic actuation:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism is caused to operate by the energy that is transmitted and said mechanism by way of exertion of a force upon a gaseous material.

164.2 Via setting elements actuating selector-command members:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes one or more members, each member being either (a) an elongated component that is movable along its length, or (b) a circular component that is rotatable, or (c) a flat and relatively thin component that is movable in a plane parallel to its width and length dimensions, and also having particular index characteristics on the member, which member(s) is/are moved to a position relative to an arrangement within the mechanism where the index characteristics are aligned to enable movement of another component of the mechanism to effect selection or choice of the type-face* desired by the typist.

164.3 Control arm connected to selection gear and movable to engage key-lever-actuated abutment:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes a pivotable lever having at one end thereof a toothed portion that is in mesh with a toothed wheel that is associated with and drives the type-head*, which lever has at the other end thereof a portion that will engage any of a plurality of stops when one of the stops is interposed into the path of pivoting of the lever, the inter-position of the selected stop to be engaged being made by the depression of a selected key* element.

164.4 Via stop pins actuatable by key-board:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes a plurality of slender, elongated elements that are connected to the type-head* for movement there of, each of said elements

being also connected to and moved by the depression of a selected key* element.

164.5 Toothed member connected to selection gear and slidable by key-lever movement:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes a bar having serrations or teeth along one edge thereof, the serrations being in mesh with a toothed wheel that is linked to the type-head* for movement thereof, which bar is reciprocated to various extents in accordance with the selection of a particular key* element and the depression of the selected key.

164.6 Selection gear rotated by key-lever movement:
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism includes a toothed wheel connected to the type-head* for movement thereof, which toothed wheel is turned by the depression of a key* element corresponding to the selected character* symbol desired to be typed.

165 Simultaneous rotation and translation of type-head by manually powered actuation (e.g., helical shift):
This subclass is indented under subclass 162. Subject matter wherein said selecting mechanism moves a type-head* that is formed as a rotatable cylindroidal member having type-face* elements on the cylindroidal surface thereof, which type-face elements are arrayed as a helix on the cylindroidal surface, and wherein selection or choice of the type-face that is to be impressed against a record-medium* is made by turning the member about its axis of rotation and moving the member along the axis at the same time it is turning, the movement being caused by a hand of the typist.

165.1 Via manually powered actuation other than by key-board (e.g., stylus selection):
This subclass is indented under subclass 162. Subject matter wherein selection or choice of the type-face* that is to be impressed against the record-medium* is made by a typist who moves a member that is part of a selecting mechanism that does not include a key-board*.

(1) Note. In this subclass (165.1) the typist manipulates a slender, elongated rod (i.e., a stylus) to select or choose the particular type-face for impression.

165.2 Including type-head movable to print-point by actuator common to all type-faces:
This subclass is indented under subclass 165.1. Subject matter wherein said mechanism includes a type-head* that is moved from a rest position to the print-point* position by a member that causes only such movement, and wherein selection or choice of the type-face* element that is to be impressed against the record-medium* is made by a hand of the typist.

(1) Note. In most typewriters that include a type-head having a type-set-assemblage* thereon, depression of a key* element causes at least two movements of the type-head. One such movements is for selection or choice of the type-face that is to be impressed, and another movement is for moving the type-head against the print-point; therefore an actuator for each key element is required. In a typewriter of this subclass, selection is made by a typist who moves the type-head manually, and movement of the type-head to the print-point is made by a single actuator that only moves the type-head to the print-point. A typewriter with this kind of mechanism is often called a “toy” typewriter.

(2) Note. In this subclass (165.2) selection of the particular type-face may be made by rotating the type-head manually or with the aid of a rack and pinion that is manually powered.

165.3 Selection by rotatable dial:
This subclass is indented under subclass 165.2. Subject matter wherein the type-head* has affixed thereto a plate bearing indicia, letters or character* symbols corresponding to those which may be imprinted on the record-medium*, which plate is turned by a hand of the typist to thereby turn the type-head for selection or choice of the type-face* to be impressed against the record-medium.

166 Including impact control:
This subclass is indented under subclass 160. Subject matter wherein the arcuate movement of said type-head-carrier* toward the record-medium* is regulated as to its impression force, whereby the impression force can be changed as desired.

SEE OR SEARCH THIS CLASS, SUBCLASS:
157.3, for impact control in a typewriter wherein a hammer moves the record-medium toward a selected type-face*.

167 Including rebound control:
This subclass is indented under subclass 160. Subject matter wherein the type-head-carrier* is supported for arcuate movement from a rest position to a print-point* and for return arcuate movement from the print-point to the rest position, and wherein the return movement is regulated as to the force with which the type-head* is returned whereby the type-head will come to rest gently, or wherein the return movement is stopped as soon as the type-head reaches its rest position whereby the type-head is prevented from springing away from its rest position after return.

168 Articulated-support joint:
This subclass is indented under subclass 160. Subject matter wherein the type-head-carrier* is supported for arcuate movement from a rest position to a print-point* and for return arcuate movement from the print-point to the rest position, and wherein significance is attributed to the connection between the type-head-carrier and its support, which connection enables the arcuate movement to occur.

169 Detenting to fix type-head for imprinting:
This subclass is indented under subclass 160. Subject matter wherein the typewriter is provided with mechanism on the type-head-carrier* to temporarily secure the type-head* to the type-head-carrier while said carrier is moving toward the record-medium* whereby the selected or chosen type-face* element will not move relative to the type-head-carrier.

170 Including movable printing anvil within type-head:
This subclass is indented under subclass 160. Subject matter wherein the type-head* is a hollow member having type-face* elements on the exterior surface thereof, and wherein the member is provided with one or more elements adjacent to the interior surface of the member, which element(s) move(s) to engage the interior surface opposite to the type-face element that has been selected or chosen to be impressed against the record-medium*.

171 Plural type-set-assemblages selectively moveable from a storage station to a printing station:
This subclass is indented under subclass 139. Subject matter wherein the typewriter is provided with more than one type-set-assemblage*, only one of which assemblages is actively in use during any particular period of time, the other(s) of the assemblages being retained inactively at a location on or adjacent to the typewriter for easy removal from the inactive location to the active location.

172 Type-faces mounted on type chips and removable from storage for printing:
This subclass is indented under subclass 139. Subject matter wherein the typewriter is provided with a type-set-assemblage* comprising type-face* elements all of which elements are separate and separable one from the others, and all of which elements are supported in or on a type-face-carrier* from which carrier each selected or chosen type-face is taken for impression of the type-face against a record-medium* and replaced into the carrier.

173 With means for exposing last-typed character:
This subclass is indented under subclass 139. Subject matter wherein significance is attributed to means for showing the typist the character* symbol that was imprinted just prior to the time that the typist wished to see the character.

SEE OR SEARCH THIS CLASS, SUBCLASS:
124.01+, for similar subject matter in a "matrix" printer typewriter.

174 Type-head, per se:
This subclass is indented under subclass 139. Subject matter wherein significance is attributed to the type-head* that bears a type-set-assemblage* in a typewriter.

175 Detachable from carrier (e.g., inter-changeable):
This subclass is indented under subclass 174. Subject matter wherein the type-head* may be removed from the type-head-carrier* and replaced thereon or another type-head replaced on the type-head-carrier.

176 HAVING FLUID-PRESSURE POWER DRIVE:
This subclass is indented under the class definition. Subject matter wherein a typewriter or a portion thereof is caused to operate by energy that is derived from or transmitted via the exertion of force upon a fluid (i.e., a flowable material).

(1) Note. The most usual fluid employed in these typewriters is air, but a liquid may also be employed as a fluid-pressure means.

177 Including pneumatic decoder for perforated tape:
This subclass is indented under subclass 176. Subject matter wherein the typewriter is controlled for operation by a mechanism that includes (a) a strip having holes therein, and (b) means for moving the strip relative to a bar having holes therein whereby the strip will cover the holes in the bar except when a hole in the strip matches a hole in the bar, and (c) means for passing air or gas through the holes in the bar when a hole in the bar is uncovered by a hole in the strip, whereby a signal or pulse is generated by the passage of air or gas through a hole in the bar, and (d) means for converting the signals or pulses so generated into one or more operation(s) of the typewriter.

178 For producing typewriter-control tape (e.g., perforated tape, etc.)
This subclass is indented under subclass 176. Subject matter wherein the energy of said fluid is used to form indicia on a strip that will subsequently be used to regulate the operation(s) of a typewriter.

(1) Note. The fluid pressure may be applied to a punch (or a plurality of punches) that cause a tape to be perforated, or may be applied to form indicia on a tape that will control a typewriter.

179 For type-face selection or choice:
This subclass is indented under subclass 176. Subject matter wherein the energy of said fluid is used to select or choose a type-face* element that is to be impressed against a record-medium*, or is used to cause the selected or chosen type-face element to be impressed against the record-medium to imprint a character* symbol thereon.

(1) Note. In this subclass the typewriter usually operates by a typist depressing a key* element, the movement of the key producing the air pressure that actuates a type-bar* (to which the selected type-face is affixed) from rest position to the print-point* position.

(2) Note. The terms “select” and “choose” (or variants of those terms) and the differences between the terms are discussed in the Glossary under definitions such as case-shift*, type-face-carrier*, type-head* and type-head-carrier*. Briefly, a particular type-face is selected from among the many available from a type-set-assemblage*, whereas an upper-case* form of letter (as distinguished from a lower-case* form of the same letter) is chosen from the forms available on one key* element.

180 Including key-board driven by external pneumatic source:
This subclass is indented under subclass 179. Subject matter wherein the energy of said fluid is used to depress the selected key* elements on the key-board* of the typewriter, and wherein the force exerted upon the fluid is applied by means outside of the typewriter.

181 By pneumatic actuation of type-face or type-bar:
This subclass is indented under subclass 179. Subject matter wherein the energy of said fluid is used to cause a selected or chosen type-face* element or a type-bar* carrying such element

to be impressed against the record-medium* to imprint a character* symbol thereon.

182 For movement of carriage or platen:
This subclass is indented under subclass 176. Subject matter wherein the energy of said fluid is used to cause motion of either the carriage* or the platen* of the typewriter.

183 Including line-spacing:
This subclass is indented under subclass 182. Subject matter wherein the motion of either the carriage* or of the platen* is such as to effect line-space* distances to the record-medium*.

184 HAVING TYPEWRITER-CONTROLLED RECIPROCABLE ELECTROMAGNETIC DRIVE FOR PLURAL FUNCTIONS IN SAME TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein the typewriter is provided with means to actuate the operation of more than one function* thereof, each of said means including a magnetic* motor energized by electricity and movable to-and-fro in a straight line, and the actuation of each of said means being initiated by a typist who is typing on the typewriter that is being actuated.

(1) Note. The "motor" of this subclass is usually a solenoid energized by electricity and initiated by pressing a switch that is connected to a key* element other than a character* key. For similar structure wherein character key elements actuate type-bar* action mechanisms, see subclass 359.

SEE OR SEARCH THIS CLASS, SUBCLASS:
359, and see (1) Note above.

185 HAVING POWER-DRIVEN OPERATOR FOR PLURAL FUNCTIONS:
This subclass is indented under the class definition. Subject matter wherein the typewriter is provided with means to actuate the operation of more than one function* thereof, each of said means being energized by force other than that supplied by the typist.

(1) Note. For the purposes of this and indented subclasses, the operation of line-space* means is considered to be equivalent to the operation of record-medium* feeding means and effectively is only a single function.

186 Via continuously rotated power roll selectively connected to operate:
This subclass is indented under subclass 185. Subject matter wherein the energizing force drives one function* or another function at the will of the typist by way of a continuously rotated power roll.

(1) Note. The term "continuously rotated power roll" is defined below in subclass 370 as that structure is applied to operate selected type-bar* members. In this subclass (186) a similar structure is used to operate a selected one of plural functions or is used to operate an auxiliary function.

SEE OR SEARCH THIS CLASS, SUBCLASS:
370, and see (1) Note above.

187 Usable selectively (e.g., for powered or manual operation, alternative usable functions, etc.):
This subclass is indented under subclass 185. Subject matter wherein the energizing force drives one function* or another function at the will of the typist, or wherein the energizing force is either used or not used to operate the typewriter at the will of the typist.

(1) Note. When the energizing force is not used to drive the typewriter, the typist supplies the force needed to drive the typewriter-actuating means.

188 FOR TYPING ON REVERSE SURFACE OF RECORD-MEDIUM:
This subclass is indented under the class definition. Subject matter wherein a record-medium* has a first surface which faces toward a platen*, and the record-medium has a second surface which faces toward a type-face* when the type-face is at a print-point*, and wherein significance is attributed to imprinting character* symbols on the first surface of the record-medium.

(1) Note. The characters are usually in mirror image, and the record-medium is

either transparent so as to be able to read the characters through the record-medium, or the record-medium is a "hectograph" master. See Glossary, section III, for further discussion of hectograph under terms ribbon* and transfer-medium*.

189 By simultaneous use of both surfaces of same ribbon:

This subclass is indented under subclass 188. Subject matter wherein a ribbon* is used as a transfer-medium* for imprinting said character* symbols on said first surface, and wherein the same ribbon is used as a transfer-medium for imprinting corresponding character symbols on another record-medium surface or on a surface of another record-medium at the same time the character symbols are imprinted on the first surface.

190 By use of "carbon paper":

This subclass is indented under subclass 188. Subject matter wherein carbon paper is used as a transfer-medium* for imprinting said character* symbols on said first surface.

(1) Note. See (1) Note under subclass 497 in this class for a discussion of the term carbon paper.

191 INCLUDING INTERPOSED INKING DEVICE (E.G., RIBBON) FOR RECORD-MEDIUM:

This subclass is indented under the class definition. Subject matter wherein significance is attributed to a transfer-medium* which is intended to be positioned between a record-medium* and a type-face* to have simultaneous surface contact with the type-face and the record-medium to form a character* on the record-medium, or to the manner of renewing the transfer characteristics of the transfer-medium while it is on the typewriter, or to the manner of holding the transfer-medium on the typewriter, or to the manner of moving the transfer-medium relative to the print-point* on the typewriter.

(1) Note. A transfer-medium which is only for correction of an error in typing is found in this class, subclass 697.

(2) Note. Inking a type-face directly for forming a character without the use of an interposed transfer-medium is found in various subclasses in this class indented under subclass 383.

(3) Note. This subclass (191) provides for an interposed inking member having a configuration other than an elongated ribbon*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
383, and see (2) Note above.
697, and see (1) Note above.

192 Moved by continuously rotating power drive intermittently applied:

This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* having a length dimension and a width dimension, and wherein movement along either dimension is imparted to the ribbon by way of a rotated power drive intermittently applied, the rotation of the drive shaft not stopping during the operation of the typewriter.

(1) Note. The term "rotated power drive intermittently applied" is defined below in subclass 365 as that term is applied to operate selected type-bar* members. In this subclass (192) a similar structure is used to cause feeding of a ribbon or actuation of the vibrator* for a ribbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
365, and see (1) Note above.

193 Inking device handheld during typing:

This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is manually supported between the record-medium* and the type-face* as the type-face is impressed against the record-medium through the transfer-medium.

194 Endless ribbon or cartridge therefor:

This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* in the form of a closed-loop band having an elongated dimension.

(1) Note. The ribbon may be driven in a single direction, thus avoiding need for ribbon-reversing structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
237, for an ink* ribbon, per se.

195 Mobius strip:
This subclass is indented under subclass 194. Subject matter wherein the ribbon is a one-sided surface formed by holding a first end of an elongated rectangle fixed, rotating the opposite end 180 about an axis coincident with a centerline of the rectangle parallel to the long dimension thereof, and securing the opposite end to the first end.

(1) Note. A Mobius strip is a unique topological phenomenon in that an object formed as described above will apparently have two "surfaces", but mathematically and actually will have only one surface. This can be proved by forming a Mobius strip as described and then applying a mark along the surface continuously along the length thereof without lifting the marker from the surface or crossing the edge of the strip. The experimenter will find that the marker will eventually reach the mark initially produced, thus proving the actuality of only a single surface. In a ribbon*, this permits typing against the apparently two "surfaces" without further manipulation of the ribbon.

196 Including storage (e.g., in cartridge, etc.) of ribbon:
This subclass is indented under subclass 194. Subject matter wherein a portion of the band is supported in a holder, and the band and holder are attachable to and removable from the typewriter as a unit to facilitate replacement of the band.

196.1 Having ribbon stored in pleated form:
This subclass is indented under subclass 196. Subject matter wherein the portion of the band in the holder is folded in a regular pattern of folds that are transverse to the elongated dimension of the band, and are alternately folded in opposite folds.

197 Renovation of used ribbon:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* which ribbon during typing is at least partially depleted of ink*, and the ribbon is treated to maintain or increase its efficacy as a transfer-medium while the ribbon is on the typewriter.

(1) Note. Examples of ribbon treatment provided for in this subclass are adding ink to the ribbon, moistening the ribbon, etc.

198 With ink heater (e.g., for melting solid ink):
This subclass is indented under subclass 197. Subject matter wherein ink* which is on or to be added to the ribbon* is relatively thick, hard, or viscous at normal room temperature, and wherein the typewriter is provided with means for elevating the temperature of the ink to increase its flowability.

(1) Note. Also found in this subclass is a disclosure of means to heat a record-medium* adjacent to the print-point* to promote uniform distribution of the ink imprinted on the record-medium.

199 By discrete auxiliary band movable with ribbon:
This subclass is indented under subclass 197. Subject matter wherein the ribbon* is movable in a direction parallel to its longitudinal extent while it is on the typewriter, and the ribbon treatment includes contacting the ribbon with a separate elongated strip of material, said strip moving in face to face contact and concurrently with at least a portion of the ribbon.

(1) Note. The band may be loaded with ink* to replenish the ink supply in the ribbon.

200 Selectively actuatable re-inker:
This subclass is indented under subclass 197. Subject matter wherein the ribbon* is treated by a device which adds ink* to the ribbon; said device being movable at the will of the typist, to either a position on the typewriter at which the device is operative to add ink to a position at which it is inoperative to add ink.

201 Of multicolor ribbon:
This subclass is indented under subclass 197. Subject matter wherein the ribbon* which is treated has plural fields of differently pigmented or tinted ink* materials.

202 Renovator attachable to typewriter for replenishing ribbon ink:
This subclass is indented under subclass 197. Subject matter wherein the ribbon* is treated by a device which adds ink* to the ribbon, said device being detachably mounted on the typewriter.

202.1 Attached to ribbon spool:
This subclass is indented under subclass 202. Subject matter wherein the ribbon* is wound in convolutions on a reel, which is mounted on the typewriter, and the device for adding ink* is mounted in or on said reel.

202.2 And includes refillable chamber (e.g., reservoir) for liquid ink:
This subclass is indented under subclass 202. Subject matter wherein the device for adding ink* to the ribbon* comprises a container which can be resupplied with flowable ink.

202.3 And conveyor or discrete drops of ink:
This subclass is indented under subclass 202.2. Subject matter wherein the ink* from the container is supplied to the ribbon* via a member that transports the ink in separate globulelike portions.

202.4 And re-inking roller:
This subclass is indented under subclass 202.2. Subject matter wherein the ink* from the container is supplied to the ribbon* via a rotatable member having a cylindrical surface for receiving and transporting the ink.

203 Ribbon disposed within platen:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon*, and the ribbon is housed interiorly of a hollow typewriter platen*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
242, for a spool mounted on a typewriter.

204 For typing plural copies simultaneously with ribbon(s) (e.g., duplicate typing):
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* and wherein plural portions of the same ribbon, or plural ribbons, are positionable relative to plural record-medium* pieces so that a single impact of a type-face* against the record-medium* imprints an identical character* on each of said pieces at the same time.

(1) Note. Proper placement of a patent into this or an indented subclass requires recitation of a transfer-medium in ribbon form. Usually the typewriter of these subclasses is used to type "duplicate original copy" texts of typed material. The term "original copy" refers to typed text that is imprinted with the use of a ribbon coated with ink* to form characters that are not

easily erased from the record-medium. The ribbon used may be an inked fabric ribbon, although in some typewriters a different form of ribbon, called a "carbon ribbon" or a "carbon-ink ribbon" has come into use. An " original copy" is distinguished from a "carbon copy" in at least two respects: an original copy is on a record-medium that is located adjacent to a fabric ribbon or a carbon ribbon at the print-point*, so that a type-face will impact directly or through the ribbon to cause transplacing of ink directly onto the surface of the record-medium, and the character imprinted onto the original may be erased only with difficulty; a carbon copy is on a record medium that under lies an original copy and a sheet of transfer-medium, usually consisting of "carbon paper", and the character imprinted onto a carbon copy is erased easily.

(2) Note. In placing a patent as an original into this or one of the subclasses indented hereunder, consideration must be taken of the intent of the patent as determined by various criteria. The primary criterion is the intent to produce a plurality of original copy texts. This is determined by a positive disclosure of at

least one of the following criteria: (a) at least two record-medium pieces are imprinted each via a ribbon with "permanent" (i.e., not easily erasable) ink, (b) the ribbon(s) being used are reversible (i.e., fed in two opposite directions so that the ribbon is used and reused). If the specification is not clear as to plural original copy texts, the patent may be cross-referenced herein, but placed as an original patent into subclass 497 as appropriate. The use of carbon paper in typing carbon copies is found in this class, subclass 497.

SEE OR SEARCH THIS CLASS, SUBCLASS:
497, and see (2) Note above.

205 Including holder for short length of ribbon:
This subclass is indented under subclass 204. Subject matter wherein there is provided a device for supporting at least one ribbon* in position relative to a platen* to receive a type-face* impact and wherein the length of the ribbon or ribbons supported by said device approximates the platen dimension along the print-line*.

205.1 Holder movable to inoperative position on typewriter:
This subclass is indented under subclass 205. Subject matter wherein the device, while mounted on the typewriter, is selectively positionable by the typist to move the ribbon* or ribbons supported by the device to a position where the ribbon or ribbons will not receive the type-face* impact.

SEE OR SEARCH THIS CLASS, SUBCLASS:
206.2, for a similar holder for plural ribbons.

206 Using plural ribbon(s) [e.g., additional ribbon(s)]:
This subclass is indented under subclass 204. Subject matter wherein the imprinting of identical character* symbols on the record-medium* pieces is accomplished by the concurrent use of more than one ribbon.

206.1 Including "carbon paper" ribbon:
This subclass is indented under subclass 206. Subject matter wherein at least one ribbon* is a ribbon formed from carbon paper.

(1) Note. See (1) Note under subclass 497 in this class for a discussion of the term carbon paper.

206.2 And ribbon holder movable to inoperative position on typewriter:
This subclass is indented under subclass 206. Subject matter wherein there is provided a device for supporting at least one ribbon* in position on the typewriter to receive a type-face* impact, and wherein said device, while mounted on the typewriter is selectively positionable by the typist to move the ribbon or ribbons supported by the device to a position where the ribbon or ribbons will not receive the type-face impact.

SEE OR SEARCH THIS CLASS, SUBCLASS:
205.1, for a similar holder for a short length of ribbon.

206.3 On plural coaxial spools:
This subclass is indented under subclass 206. Subject matter wherein ribbon*-receiving reels are provided to mount the ribbons on the typewriter, and wherein at least two of the reels are so mounted on the typewriter, as to have a common centerline about which the reels may rotate in paying-out or taking-up the ribbons.

206.4 On single spool:
This subclass is indented under subclass 206. Subject matter wherein at least one ribbon*-receiving reel is provided to mount the ribbons on the typewriter, and wherein more than one ribbon is convoluted on a single reel.

207 Package for ribbon facilitating mounting of ribbon on typewriter (e.g., ribbon cartridge):
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* housed in a receptacle, and wherein the ribbon and receptacle are attachable to and removable from the typewriter as a unit, or the receptacle contributes in simplifying attachment of the ribbon to the typewriter.

(1) Note. A ribbon spool for a typewriter with no additional package structure is found in this class, subclasses 242+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
242+, and see (1) Note above

208 Package attached to typewriter:
This subclass is indented under subclass 207. Subject matter wherein the ribbon* and the receptacle remain on the typewriter during typing.

208.1 And includes separable assemblage of spools:
This subclass is indented under subclass 208. Subject matter wherein the ribbon* receptacle comprises a pair of interconnected ribbon-receiving reels, and wherein the reels are disconnected from each other when attached to the typewriter.

209 For bottom-strike typewriter:
This subclass is indented under subclass 191. Subject matter wherein significance is attributed to a ribbon* specialized for use in a typewriter in which type-face* elements impact against the platen* (and thereby impact against a record-medium* that is backed by the platen) at a print-point* located adjacent to an underneath part of the platen.

210 For boldface typing:
This subclass is indented under subclass 191. Subject matter wherein significance is attributed to imprinting character* symbols formed of lines having greater than normal thickness.

SEE OR SEARCH THIS CLASS, SUBCLASS:
304, for varying carriage feed to accomplish a similar result.
466, for a type-face* configuration which accomplishes a similar result.

211 Including mechanism for shifting ribbon laterally at print-point:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon and provision is made for moving the ribbon in a direction transverse to its elongated dimension, such movement occurring in an area of the typewriter adjacent to the print-point*.

(1) Note. In this subclass (211) the transverse movement occurs by reason of the entire ribbon and the spool(s) on which the ribbon is wound or mounted being moved in the transverse direction.

212 Via electrically powered actuator:
This subclass is indented under subclass 211. Subject matter wherein the movement of a ribbon* in a transverse direction is accomplished with the help of force derived from electrical energy.

213 For impact of successive type-face on one field of ribbon in path not parallel to longitudinal extent of ribbon (e.g., "zigzag", oblique, etc.):
This subclass is indented under subclass 211. Subject matter wherein type-face* elements strike the same print-point* of a typewriter in a series of impacts against a ribbon* that moves in a length direction between successive impacts and that has a zone of a particular color, the dimensions of which zone correspond to the length and to at least part of the width of the ribbon, and wherein succeeding elements impact the zone at areas of the zone that are spaced widthwise as well as lengthwise of the ribbon.

(1) Note. The path of the successive impacts on the ribbon so moved may be zigzag, oblique, sinusoidal, etc., as the ribbon moved longitudinally and transversely of the print-point.

213.1 Via ribbon vibrator:
This subclass is indented under subclass 213. Subject matter wherein the transverse movement of the ribbon* is accomplished by a ribbon vibrator*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
215+, for a ribbon vibrator and means for moving the vibrator.

214 Plural ribbons shiftable laterally (e.g., by duplicate vibrators):
This subclass is indented under subclass 211. Subject matter wherein more than one ribbon* is mounted on the typewriter, and provision is made for such transverse movement to be given to each of the ribbons.

215 By ribbon vibrator:
This subclass is indented under subclass 211. Subject matter wherein at least a portion of an elongated ribbon* is constrained for movement within a vibrator* and wherein the vibrator moves the constrained portion transversely to the elongated dimension of the ribbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
213.1, for a ribbon vibrator producing a particular path on the ribbon.

215.1 Including vibrator shiftable during use of nonfeed character key (e.g., for typing accent mark, etc.):
This subclass is indented under subclass 215. Subject matter wherein the typewriter is provided with means for normally moving the carriage* to the extent of a character-space* for each depression of a character* key* and with means for normally moving the vibrator* concurrently with carriage movement, and wherein significance is attributed to a mode of operation in which a character key is depressed to move the vibrator without concurrent movement of the carriage.

(1) Note. The mode of operation defined above enables two type-face* elements to be impacted successively at the same print-point* on the record-medium* so that a letter and an accent mark for that letter may be imprinted.

215.2 With retardation of vibrator return after type-face impact (e.g., with dashpot):
This subclass is indented under subclass 215. Subject matter wherein the vibrator* movement is regulated in such a manner that the ribbon* is temporarily held at its print-point* covering position for receiving successive type-face* impacts without completely uncovering the print-point after each impact.

(1) Note. This subclass provides for a disclosure wherein the print-point remains covered by the ribbon when typing at a normal rate, but if the typist stops typing, the vibrator moves the ribbon to permit viewing the print-point.

215.3 With elevation and holding of vibrator above print-point (e.g., to facilitate ribbon insertion:
This subclass is indented under subclass 215. Subject matter wherein provision is made for selectively lifting and sustaining the vibrator* in a position higher than the print-point* to facilitate access to the vibrator.

215.4 With inactivation of vibrator (e.g., for cutting a stencil):
This subclass is indented under subclass 215. Subject matter wherein provision is made for selectively controlling the movement of the vibrator* in a manner such that the typist may choose to not have the vibrator move transversely so that the ribbon* will not cover the print-point* during typing.

216 Including variable throw of vibrator:
This subclass is indented under subclass 215. Subject matter wherein provision is made for changing the extent of transverse movement imparted to the vibrator* so as to change the extent the ribbon* is moved transversely relative to the print-point*.

216.1 For diverse-field (e.g., plural-color) ribbon:
This subclass is indented under subclass 216. Subject matter wherein the ribbon* has zones with different characteristics, each zone having dimensions that correspond to the length and to at least part of the width of the ribbon, and the change in the extent of the transverse vibrator* movement is for changing the ribbon zone which is over the print-point* to receive the type-face* impact.

216.2 With typewriter-controlled change of field:
This subclass is indented under subclass 216.1. Subject matter wherein a first part of a typewriter moves to accomplish its intended first-part function, and during said movement the first part engages a second part to move the second part, and wherein movement of the second part causes movement of the vibrator* that

changes the ribbon* zone that is over the print-point*.

(1) Note. This subclass provides for a typewriter wherein the typist may preset the typewriter to imprint selected columns of type in different colors of ink*.

216.3 By movement parallel to print-line:
This subclass is indented under subclass 216.1. Subject matter wherein the vibrator movement is in the same direction as the longitudinal extent of the print-line*.

216.4 Vibrator throw controlled via alternate pins selectively inserted in slots:
This subclass is indented under subclass 216.1. Subject matter wherein an assemblage of elements for moving the vibrator* to change ribbon* zones includes one member or members having plural peg-like projections selectively positionable in respective elongated openings in another member or members, and wherein the extent of vibrator movement is controlled according to which of the pins is positioned relative to its respective opening.

216.5 Field selection by selectively positioned stop faces to limit vibrator movement:
This subclass is indented under subclass 215.1. Subject matter wherein an assemblage of elements for moving the vibrator* to change ribbon* zones includes a member having a surface which, during vibrator movement, is intended to contact an abutment surface on another member, and wherein the extent of vibrator movement for zone selection is controlled by the position of said abutment surface.

216.6 To compensate for case-shift:
This subclass is indented under subclass 216.1. Subject matter wherein significance is attributed to accommodating the extent of transverse vibrator* movement to take into account relative change of position between a record-medium* and a type-face* as a result of case-shift*.

217 To shift impact path (e.g., during ribbon reversal):
This subclass is indented under subclass 211. Subject matter wherein the ribbon* is intended to receive multiple type-face* impacts along a first zone extending parallel to the elongated dimensions of the ribbon, and wherein significance is attributed to the manner of moving the ribbon transversely relative to its elongated dimension so that subsequent type-face impacts will be in a different zone transversely spaced from the first zone.

217.1 By adjustable ribbon guide spaced from supply spool:
This subclass is indented under subclass 217. Subject matter wherein the ribbon* is wound in convolutions of a reel and is led from the reel past the print-point* via a member which causes the ribbon to follow a predetermined path, and wherein the transverse movement of the ribbon is caused by selectively changing the position of said member relative to the print-point.

218 Ribbon-reversing mechanism:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* and the provision is made for moving the ribbon relative to a print-point* in a first direction as character* symbols are imprinted on a record-medium* during typing, and wherein significance is attributed to a manner of causing the ribbon to move relative to the print-point in a direction opposite to said first direction for further typing of characters on the record-medium using the same ribbon.

219 Including means responsive to depletion of ribbon supply:
This subclass is indented under subclass 218. Subject matter wherein the ribbon* is moved to the print-point* from a location where the ribbon has been stored on the typewriter, and wherein there is means for detecting when such ribbon storage has been exhausted to cause the ribbon to move in the opposite direction.

219.1 Including an electric switch:
This subclass is indented under subclass 219. Subject matter wherein said detecting means includes a device for influencing an electrical circuit used in the operation of a member or members controlling the direction of movement of the ribbon*.

219.2 Including lever retained in spool by wound ribbon:

This subclass is indented under subclass 219. Subject matter wherein the ribbon* is stored on the typewriter in convolutions on a reel, and wherein said detecting means includes a member mounted on the reel and held in a first position by the convoluted ribbon, said member being movable to a second position to influence ribbon direction-changing means when the ribbon has been unwound from engagement with the member.

219.3 Including sensor for diameter of wound ribbon:

This subclass is indented under subclass 219. Subject matter wherein the ribbon* is stored on the typewriter accumulated in wound convolutions, and wherein said detecting means includes a detecting member which is biased against the outermost convolution in a manner such that said member moves as the number of convolutions increases or decreases and wherein the movement of said member influences the ribbon direction-changing means.

219.4 Sensor received in depression in core of spool:

This subclass is indented under subclass 219.3. Subject matter wherein the ribbon* is stored on the typewriter in convolutions around a cylindrical surface of a reel, and wherein said cylindrical surface includes an opening or cavity which receives said detecting member when all the convolutions have been exhausted from the reel.

219.5 Including projection from ribbon:

This subclass is indented under subclass 219. Subject matter wherein the ribbon* includes a protuberance from a surface thereof, and said detecting means includes a member actuated by said protuberance to influence ribbon direction-changing means when the ribbon storage is exhausted.

SEE OR SEARCH THIS CLASS, SUBCLASS:

239, for a ribbon, per se, having a protuberance for actuating reversing mechanism.

220 Alternative pawl-and-ratchet drive including ratchet directly connected to spool or spindle:

This subclass is indented under subclass 218. Subject matter wherein opposite ends of the ribbons* are attached respectively to first and second cylindrical members, the first member having a first ratchet* secured thereon to be driven by a first pawl* and thereby move the ribbon in the first direction by winding it on the first member, and the second member having a second ratchet secured thereon to be driven by a second pawl and thereby move the ribbon in the opposite direction by winding it on the second member, and wherein means are provided for causing the first pawl to be operative in its driving relationship with the first ratcher while the second pawl is caused to be inoperative, or for causing the second pawl to be operative in its driving relationship with the second ratchet while the first pawl is caused to be inoperative.

SEE OR SEARCH THIS CLASS, SUBCLASS:

236.1, for pawl-and-ratchet drive for ribbon feeding.

220.1 Including common pawl member (e.g., double-toothed pawl):

This subclass is indented under subclass 220. Subject matter wherein the first and second pawls* are formed as integral parts of a single component.

220.2 Including member interposed in pawl drive path:

This subclass is indented under subclass 220. Subject matter wherein the means for causing a pawl* to be inoperative includes an element having a surface positionable in the path of the pawl to prevent engagement of the pawl with its ratchet*.

221 Alternative gear drive including gear directly connected to spool or spindle:

This subclass is indented under subclass 218. Subject matter wherein opposite ends of the ribbon* are attached respectively to first and second cylindrical members, the first member having a first toothed-driven wheel secured thereto, and the second member having a second toothed-driven wheel secured thereto, the first and second driven wheels being driven by

a toothed driving wheel selectively engageable with either of the driven wheels or being driven by first or second driving wheels engageable respectively with the first or the second driven wheels, the driving wheel or wheels having a different axis of rotation than the driven wheels, and wherein shiftable means are provided to selectively cause a driving wheel to operatively engage the first driven wheel to move the ribbon the first direction by winding the ribbon on the first member, or to cause a driving wheel to operatively engage the second driven wheel to move the ribbon in the opposite direction by winding the ribbon on the second member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
236.2, for gear drive for ribbon feeding.

221.1 And gears mounted on ends of axially shiftable common shaft:
This subclass is indented under subclass 221. Subject matter wherein a first driving wheel is secured to one extremity of a rod having an elongated dimension and a second driving wheel is secured to the opposite extremity of the same rod, the rod being shiftable in opposite directions parallel to the elongated dimension of the rod to either engage the first driving wheel with the first driven wheel or to engage the second driving wheel with the second driven wheel.

221.2 And gears mounted on ends of pivoted common shaft:
This subclass is indented under subclass 221. Subject matter wherein a first driving wheel is secured to one extremity of a rod having an elongated dimension, and a second driving wheel is secured to the opposite extremity of the same rod, the rod being movable about an axis perpendicular to its elongated dimension to either engage the first driving wheel with the first driven wheel or to engage the second driving wheel with the second driven wheel.

222 Alternative clutch drive including clutch member directly connected to spool or spindle:
This subclass is indented under subclass 218. Subject matter wherein opposite ends of the ribbon* are attached respectively to first and second cylindrical members, the first member having a first driven coupling device secured thereto, and the second member having a second driven coupling device secured thereto, the first and second driven coupling devices being driven by a driving coupling device selectively engageable with either of the driven coupling devices or being driven by first or second driving coupling devices selectively engageable respectively with the first or the second driven coupling devices, the driving coupling device or devices being coaxial with the driven coupling devices and the driving and driven devices having a one-to-one drive ratio, and wherein shiftable means are provided to selectively cause a driving coupling device to operatively engage the first driven coupling device to move the ribbon in the first direction by winding the ribbon on the first member, or to cause a driving coupling device to operatively engage the second driven coupling device to move the ribbon in the opposite direction by winding it on the second member.

223 Ribbon-feeding mechanism:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* and significance is attributed to a manner of moving the ribbon relative to a print-point* in a direction parallel to the longitudinal extent of the ribbon as character* symbols are imprinted on a record-medium* or to the manner of regulating such ribbon movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:
36, for ribbon feed in a flat-platen typewriter.
218, for ribbon reversing wherein ribbon feeding is disclosed.

224 For feeding ribbon angularly to print-line at print-point:
This subclass is indented under subclass 223. Subject matter wherein the lengthwise dimension of at least a portion of the ribbon* which is at the print-point* extends in a direction other than parallel to the print-line*.

224.1 Ribbon fed perpendicular to print-line at print-point:
This subclass is indented under subclass 224. Subject matter wherein the lengthwise dimension of the portion of the ribbon* which is at

the print-point* extends at a right-angle to the print-line*.

224.2 Ribbon is full-page wide:
This subclass is indented under subclass 224.1. Subject matter wherein a dimension of the ribbon* transverse to the longitudinal extent of the ribbon is approximately the same as the dimension of the record-medium* parallel to the print-line*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
246, for a cylindrical member for convoluting thereon a ribbon of similar dimension.

225 Including electrically powered drive means (e.g., solenoid, stepping motor, etc.):
This subclass is indented under subclass 223. Subject matter wherein movement of the ribbon* is accomplished with the help of force derived from electrical energy.

226 For feeding ribbon partial character-space before impact and partial character-space after impact:
This subclass is indented under subclass 223. Subject matter wherein the ribbon is moved relative to the print-point* in incremental distances approximating the width of a character* as characters are imprinted on the record-medium*, and wherein the ribbon is moved a portion of such incremental distance prior to a type-face* contacting the ribbon, and the ribbon is moved the remaining portion of such incremental distance after the same type-face contacts the ribbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
232, for ribbon feeding at a particular feed rate.

227 For narrow carbon ribbon (e.g., carbon ink, "single use", etc.):
This subclass is indented under subclass 223. Subject matter wherein the ribbon* being moved is a carbon-ink ribbon or a "carbon-paper" ribbon.

(1) Note. See the definition of ribbon in the Glossary, section III, for a discussion of carbon-ink and carbon-paper ribbons, and see (1) Note under subclass 497 for a discussion of the term carbon-paper.

227.1 Ribbon destroyed after use:
This subclass is indented under subclass 227. Subject matter wherein provision is made for treating the ribbon* on the typewriter after the ribbon leaves the print-point* so as to render illegible any type-face* impressions on the ribbon or to make the ribbon useless for further typing.

227.2 Or for alternately used fabric ribbon:
This subclass is indented under subclass 227. Subject matter wherein a "fabric" ribbon* is also mounted for use on the typewriter and provision is made for either moving the fabric ribbon relative to the print-point* or for moving the "carbon-paper" or "carbon-ink" ribbon relative to the print-point, the ribbon which is so moved being selectable by the typist which is so moved being selectable by the typist.

(1) Note. See the definition of ribbon in the Glossary, section III, for a discussion of fabric ribbon.

228 Including pin-feed-engaging ribbon:
This subclass is indented under subclass 223. Subject matter wherein the ribbon* is moved by contacting the ribbon with elements that are movable in a ribbon-feeding direction, which elements either pierce the ribbon or move into preformed openings in the ribbon.

229 Mounted with movable type-face-carrier or type-head-carrier:
This subclass is indented under subclass 223. Subject matter wherein the ribbon* is attached to a type-face-carrier* or is attached to a type-head-carrier* either of which carriers moves relative to a stationary record-medium* for imprinting the character* symbols along the print-line*, whereby the ribbon moves with either the type-face-carrier or the type-head-carrier.

230 With fast rewind of ribbon:
This subclass is indented under subclass 223. Subject matter wherein the ribbon* is supplied to the print-point* from a coiled supply of the ribbon so that the supply is depleted while the ribbon is moved in a first direction during imprinting of character* symbols, and wherein

provision is made for rapidly moving the ribbon in the opposite direction to replenish the coiled supply, no character symbols being imprinted during such rapid movement.

231 With prevention of ribbon feed (e.g., for nontype operation, etc.):
This subclass is indented under subclass 223. Subject matter wherein there is a drive mechanism for moving the ribbon* relative to the print-point*, and wherein significance is attributed to stopping or disconnecting such drive mechanism while a function* is performed on the typewriter.

(1) Note. It is usual to have ribbon movement depend on carriage* movement as the carriage is moved in the direction of the print-line* while character* symbols are imprinted so that a fresh ribbon surface is presented for each type-face* impact. There are other carriage movements (e.g., for spacing between words, backspace, etc.) where no imprint takes place and so a fresh ribbon surface is not needed as a result of the latter movements. This subclass (231) provides for disclosures wherein ribbon drive mechanism is disconnected for carriage movements when no imprinting takes place.

232 Including feed at particular feed rate (e.g., "creep" feed):
This subclass is indented under subclass 223. Subject matter wherein the ribbon* is moved a predetermined distance relative to the print-point* each time a character* is imprinted on the record-medium*, and wherein significance is attributed to the speed at which the ribbon is so moved or to the distance the ribbon is so moved.

SEE OR SEARCH THIS CLASS, SUBCLASS:
226, for feeding ribbon a partial character-space* before type-face* impact and a partial character-space after type-face impact.

233 Ribbon feed from supply only during carriage return:
This subclass is indented under subclass 223. Subject matter wherein a carriage* is moved in a first direction along a print-line* as character* symbols are imprinted, and the carriage is moved in a second direction opposite to the first direction to begin another print-line, and wherein the ribbon* is moved to the print-point* from a location where the ribbon has been stored on the typewriter, such movement of the ribbon from storage taking place only when the carriage is moved in the second direction.

234 Including ribbon tensioner:
This subclass is indented under subclass 223. Subject matter wherein significance is attributed to means for maintaining the ribbon* in a relatively taut or non-sagging condition as the ribbon is moved relative to the print-point*.

235 Drive applied by means directly engaging ribbon in advance of takeup:
This subclass is indented under subclass 223. Subject matter wherein the ribbon* is accumulated at a location on the typewriter after the ribbon has moved past the print-point*, and wherein the ribbon is moved in the direction parallel to its longitudinal extent by a motion-transmitting mechanism which contacts the ribbon at a place on the typewriter between the print-point and the accumulated location of the ribbon.

235.1 Drive applied by pinch-roller couple:
This subclass is indented under subclass 235. Subject matter wherein the motion-transmitting mechanism includes a pair of rotatable cylindrical members positioned with respect to each other, and to the ribbon*, in a manner such that one member engages one surface of the ribbon, and the other member engages the opposite surface of the ribbon, whereby rotation of the members in opposite rotational directions moves the ribbon toward the location wherein the ribbon is accumulated.

236 Drive applied directly to spool or spool spindle:
This subclass is indented under subclass 223. Subject matter wherein one end of the ribbon* is attached to a cylindrical member, and wherein the ribbon is moved past the print-point* by rotating the member about its axis to wind the ribbon in convolutions thereon, said member being rotated by a motion-transmitted mechanism, and said mechanism including a

component rigidly secured to the cylindrical member.

236.1 By a pawl driving a ratchet on the spool or spindle:
This subclass is indented under subclass 236. Subject matter wherein the component secured to the cylindrical member is a ratchet*, and wherein the motion-transmitting mechanism includes a pawl* for moving the ratchet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
220, for pawl-and-ratchet drive used with ribbon reversing.

236.2 By a gear driving a gear on the spool or spindle:
This subclass is indented under subclass 236. Subject matter wherein the component secured to the cylindrical member is a first toothed wheel, and wherein the motion-transmitting mechanism includes a second toothed wheel engageable to rotate the first toothed wheel, said first and second toothed wheels having different and non-coextensive axes of rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
221, for gear drive used with ribbon reversing.

237 Ribbon, per se:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* and significance is attributed to the structure or characteristics of the ribbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
194, for an endless ribbon.

238 Having leader portion (e.g., for threading, etc.):
This subclass is indented under subclass 237. Subject matter wherein significance is attributed to a modification of either end of the ribbon*.

(1) Note. Such modification may be for various reasons including facilitating attachment to a spool, facilitating threading of the ribbon through a guide, or permitting handling without soiling the typist's fingers with ink*.

239 With ribbon-reversing indicator or device on ribbon:
This subclass is indented under subclass 237. Subject matter wherein the ribbon* is of a kind which, when in use on a typewriter, is intended to be moved in either of opposite directions relative to a print-point*, and wherein significance is attributed to a modification of the ribbon which either alerts the typist that directional change of the ribbon is desired or controls the mechanism for changing the directional movement of the ribbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
218, for a mechanism for moving a ribbon in either of opposite directions.

240 Including differently pigmented fields:
This subclass is indented under subclass 237. Subject matter wherein the ribbon* has plural zones impregnated or coated with a coloring agent intended to be transferred from the ribbon to the record-medium* during typing, the coloring agent in one zone being ink* of a first color, and the coloring agent in another zone being of a different shade or color than the first color.

240.1 Including correction-material field:
This subclass is indented under subclass 240. Subject matter wherein one of the zones includes a coloring agent which is a coating of a color approximating the color of the record-medium*, which coating will adhere to the ink*, of an imprinted character*, or wherein one of the zones includes a chemical agent which eradicates the ink that has been imprinted on the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
697, for an error-correcting sheet or tape.

240.2 With prevention of bleeding between adjacent fields:
This subclass is indented under subclass 240. Subject matter wherein significance is attributed to a manner of impeding the migration of the coloring agent from one zone to another zone next to it.

240.3 Including fields arranged transversely to elongated dimension of ribbon:
This subclass is indented under subclass 240. Subject matter wherein each zone has a dimension that corresponds to the width and to only a part of the length of the ribbon*.

240.4 Including more than two fields:
This subclass is indented under subclass 240. Subject matter wherein the ribbon* has at least three zones.

241 Particular ribbon material:
This subclass is indented under subclass 237. Subject matter wherein significance is attributed to the substance from which the ink*-carrying portion of the ribbon* is made.

241.1 Synthetic material:
This subclass is indented under subclass 241. Subject matter wherein the substance is a compound formed from chemical reaction involving elements, radical, or simpler compounds.

(1) Note. This subclass provides for disclosure of a ribbon* wherein the ink*-carrying substance of the ribbon is a "man-made" substance rather than a substance which occurs naturally.

241.2 Wherein ink is entrapped in ribbon material (e.g., microcapsules, micropores, etc.):
This subclass is indented under subclass 241.1. Subject matter wherein the substance includes a component having extremely small orifices or openings or chambers therein, the orifices or openings or chambers each holding a discrete quantity of ink*.

241.3 Particular weave pattern:
This subclass is indented under subclass 241. Subject matter wherein the ribbon is formed from interlaced thread-like elements, and wherein significance is attributed to the manner in which such elements are arranged relative to each other.

241.4 Including ink-impervious backing for ribbon:
This subclass is indented under subclass 241. Subject matter wherein the ribbon* has first and second surfaces, the first surface contacting a record-medium* to imprint a character* by transferring ink* from the ribbon to the record-medium when the second surface is contacted by a type-face*, and wherein the second surface of the ribbon is formed of a substance through which ink is incapable of passing to preclude direct contact of the type-face with ink.

242 Ribbon spool or mount therefor:
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon* in the form of an elongated tape that is spirally wound around a cylindrical member, and wherein significance is attributed to said member or to holding the member and the ribbon wound thereon on a typewriter.

(1) Note. The member (i.e., spool) may have flanges extending radially to retain the spiral convolutions of the ribbon wound thereon, or may be a core having no flanges.

SEE OR SEARCH THIS CLASS, SUBCLASS:
203, for a spool mounted within a platen*.
207, for a package for ribbon spool(s) simplifying mounting the ribbon and spool on a typewriter.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 600+ and 118+ for a spool to support wound material.

243 Universally adaptable:
This subclass is indented under subclass 242. Subject matter wherein significance is attributed to a modification of, or an attachment for, the cylindrical member which facilitates holding the member on any of diverse shapes or kinds of supports on a typewriter.

244 Including ribbon-reversing indicator or device on spool or mount:
This subclass is indented under subclass 242. Subject matter wherein the cylindrical member is intended to be rotated in either of opposite directions depending on whether the ribbon is to be wound thereon or to be unwound therefrom, and wherein significance is attributed to a modification of such cylindrical member which either alerts the typist that a change in directional rotation of the member is desired,

or which controls the mechanism for changing the directional rotation of the member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
218, for a mechanism for moving a ribbon in either of opposite directions.

245 Including magnetic retainer:
This subclass is indented under subclass 242. Subject matter wherein magnetic* force is used to hold the cylindrical member in position on the typewriter.

246 Spool for full-page-wide ribbon:
This subclass is indented under subclass 242. Subject matter wherein the cylindrical member is intended to accommodate a ribbon* having a dimension transverse to its longitudinal extent which dimension is approximately the same as the dimension of the record-medium* parallel to the print-line*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
224.2, for a mechanism for feeding ribbon of similar dimension.

247 Means auxiliary to ribbon mechanism (e.g., shield, guide, etc.):
This subclass is indented under subclass 191. Subject matter wherein the transfer-medium* is a ribbon*, and wherein significance is attributed to a device used in conjunction with the ribbon, but which device does not itself effect the imprint of a character* or function* of the typewriter, or which device is not provided for in any of the subclasses indented under subclass 191.

248 Including guide for ribbon:
This subclass is indented under subclass 247. Subject matter wherein the device is a member for conducting or leading the ribbon* from its place of storage on the typewriter to the print-point* or from the print-point to a place of storage on the typewriter.

248.1 Ribbon guide opening expandable to facilitate ribbon insertion:
This subclass is indented under subclass 248. Subject matter wherein the member includes a pair of components between which the ribbon* extends, said components having first and second positions movable relative to each other and being spaced further from each other at said second position than at said first position to facilitate placement of the ribbon between the components at said second position.

248.2 And typewriter-actuated closing of guide:
This subclass is indented under subclass 248.1. Subject matter wherein a first part of a typewriter moves to accomplish its intended first-part function, and during said movement the first part engages a second part to move the second part, and wherein movement of the second part causes relative movement of said components from said second position to said first position.

248.3 Including electrical, magnetic, or pneumatic guide means:
This subclass is indented under subclass 248. Subject matter wherein the member for conducting or leading the ribbon* is influenced by electrical, magnetic, or pneumatic energy.

249 Including indicator for depletion of ribbon (e.g., bell, sign, etc.):
This subclass is indented under subclass 247. Subject matter wherein the ribbon* is supplied to the print-point* from a supply of ribbon, and wherein significance is attributed to a device for informing the typist that the supply has been exhausted.

SEE OR SEARCH THIS CLASS, SUBCLASS:
703, for an indicator of general utility in a typewriter.

250 Including tool for inserting ribbon:
This subclass is indented under subclass 247. Subject matter wherein said device comprises an implement for installing the ribbon* in position on the typewriter.

251 CASE-SHIFT MECHANISM:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a means in a typewriter for performing a case-shift* function by effecting relative movement between a record-medium* and a type-face* element that is at the print-point* whereby a typist is enabled to choose which one of two or more forms of character* symbols that may be imprinted by pressing a

particular character key* element will be imprinted, the choice being made by the typist who presses or does not press a case-shift key.

(1) Note. As discussed in the definition of case-shift in the Glossary, section III, case-shift is the function* that enables a typewriter to imprint either an upper-case* form or a lower-case* form of character symbol with the same key element, depending on whether the case-shift key is used or not used.

SEE OR SEARCH THIS CLASS, SUBCLASS:
35, for case-shift in a flat-platen* typewriter.

252 Including programmed-control-system:
This subclass is indented under subclass 251. Subject matter wherein the operation of the case-shift* mechanism to effect the form of a type-face* that is to be impressed against the record-medium* is governed by a programmed-control-system*.

253 Including electronic control or code-bar control:
This subclass is indented under subclass 251. Subject matter wherein the operation of a case-shift* mechanism to effect the form of a type-face* that is to be impressed against a record-medium* is governed by either (a) an electrical system involving the flow of electrons in a circuit, or (b) a plurality of members having particular index characteristics thereon, which members are moved to a position relative to an arrangement of element(s) within the mechanism where the index characteristics are aligned one with another to enable movement of another component of the mechanism to effect choice of operation or non-operation of the case-shift mechanism.

254 Controlled by typewriter-actuated mechanism:
This subclass is indented under subclass 251. Subject matter wherein the operation of the case-shift* mechanism to effect the form of a type-face* that is to be impressed against the record-medium* is governed by an arrangement of parts in the typewriter, which arrangement includes a first part that moves to accomplish its intended first-part function*, and during such movement the first part engages a second part to move the second part, which second part is connected to the case-shift mechanism to accomplish case-shift as the first part moves to accomplish its first-part function.

255 Including plural case-shift mechanisms (e.g., for simultaneous or selective use):
This subclass is indented under subclass 251. Subject matter wherein one typewriter is provided with at least two case-shift* means.

(1) Note. One exemplary use of two case-shift mechanisms is in a typewriter wherein the carriage*, and thereby the platen* that is carried by the carriage, is vertically movable in a case-shift mode, and wherein the type-bar-segment*, and thereby the type-set-assemblage* that is carried by the type-bar-segment, is also movable for case-shifting.

256 Actuated by toggle-linkage:
This subclass is indented under subclass 251. Subject matter wherein the case-shift* mechanism includes a toggle-linkage* assemblage that is used to move a portion of the typewriter for case-shifting.

257 For case-shift by type-head (e.g., spherical type-head) movement:
This subclass is indented under subclass 251. Subject matter wherein the typewriter is provided with a type-head* that includes a type-set-assemblaged*, which type-head is moved by case-shift* mechanism for selection of the form of character* symbol to be used.

(1) Note. The typewriter of this subclass often is provided with a “golf-ball” or spheroidal type-head*. See the definition of type-head in the Glossary, section III, for a discussion of other configurations of type-head elements.

258 Power-operated mechanism (e.g., for locking shift key):
This subclass is indented under subclass 251. Subject matter wherein the case-shift* mechanism is actuated with the help of force generated by or derived from a source other than the typist.

(1) Note. This subclass provides for power applied for a miscellaneous function* in the case-shift mechanism of the typewriter, including some disclosures of a solenoid used for locking the shift-key element of the key-board.

259 For shifting platen:
This subclass is indented under subclass 258. Subject matter wherein said force is used to move the platen* in its case-shift* movement.

260 For shifting type-bar-segment:
This subclass is indented under subclass 258. Subject matter wherein said force is used to move the type-bar-segment* in its case-shift* movement.

261 Multiple-shift mechanism (i.e., for type-bar having three or more type-faces thereon):
This subclass is indented under subclass 251. Subject matter wherein the typewriter is provided with a plurality of type-bar* members, each type-bar having at least three type-face* elements thereon, only one of which type-face is to be impacted to form only one character* on record-medium* for each pressing of a character key* element, and wherein the case-shift* mechanism is arranged to cause relative movement between a record-medium and the selected type-bar that is at a print-point* into one of at least three positions, whereby a chosen one of the type-face* with respect to the type-bar* that carries the type-face, the movement being a turning motion.

(1) Note. This subclass provides for a typewriter wherein a platen* is shifted vertically, or horizontally, as in a bottom-strike or top-strike typewriter.

262 For shifting type-bar-segment:
This subclass is indented under subclass 261. Subject matter wherein case-shift* is effected by moving the type-bar-case-shift* is effected by moving the type-bar-segment* relative to the typewriter thereby moving the type-bar* members and the type-face* elements carried thereby to the platen*.

263 For shifting type-bar or type-face on type-bar:
This subclass is indented under subclass 261. Subject matter wherein case-shift* is effected by moving the type-bar* relative to the typewriter, or by moving the type-face* relative to the type-bar, whereby in either event the type-face is moved relative to the platen*.

263.1 By pivoting type-face relative to type-bar:
This subclass is indented under subclass 263. Subject matter wherein case-shift* is effected by moving the type-face* with respect to the type-bar* that carries the type-face, the movement being oscillatory or arcuate.

263.2 By rotating type-face relative to type-bar:
This subclass is indented under subclass 263. Subject matter wherein case-shift* is effected by moving the type-face* with respect to the type-bar* that carries the type-face, the movement being a turning motion.

264 For shifting platen:
This subclass is indented under subclass 251. Subject matter wherein case-shift* is effected by moving the platen* relative to the typewriter, thereby moving the record-medium* relative to the type-face* element which will impact thereagainst.

SEE OR SEARCH THIS CLASS, SUBCLASS:
261, for case-shift by moving platen in a multiple-shift typewriter

265 Fore-and-aft (e.g., for top-strike or bottom-strike typewriter):
This subclass is indented under subclass 264. Subject matter wherein the movement of the platen* during case-shift* is in a direction that extends between the front and rear of the typewriter and substantially parallel to the bottom of the typewriter.

(1) Note. The typewriter of this subclass is usually one wherein the type-face* impacts against the top of the platen or the bottom of the platen.

266 Mounted on pivotally movable platen carrier:
This subclass is indented under subclass 264. Subject matter wherein the platen* is supported by structure that moves the platen in the arc of a circle for case-shift* purposes.

(1) Note. In most typewriters, the platen-carrier or platen-support structure is a carriage*.

266.1 With movement of platen out of typing position:
This subclass is indented under subclass 266. Subject matter wherein said structure enables the platen* to be removed from adjacent the print-point*.

(1) Note. In the typewriter of this subclass the platen is movable out of typing position or may be entirely removed from the carriage* that normally supports the platen.

266.2 Including adjustable counterbalance spring:
This subclass is indented under subclass 266. Subject matter wherein the platen* and the structure that moves the platen has mass that exerts a downward force, and wherein the typewriter is provided with a component or assemblage of elements that exerts an upward force on the said structure to compensate for this downward force of said structure, which component or assemblage of elements is resilient and the upward force exerted by the component or assemblage is variable.

266.3 Including a yieldable link (e.g., spring, etc.):
This subclass is indented under subclass 266. Subject matter wherein said structure includes movable members that effect movement of the platen*, at least one of which members is a resilient member.

267 By depression of space-bar:
This subclass is indented under subclass 264. Subject matter wherein movement of the platen* for case-shift* is accomplished by pressing the space-bar* element on the keyboard*.

268 For shifting type-face or type-bar:
This subclass is indented under subclass 251. Subject matter wherein case-shift* is effected by moving a type-face* or by moving a type-bar* relative to the typewriter platen*, the direction of such movement being considered to be parallel to a plane in which the print-point* lies, thereby causing a chosen type-face to be impacted against a record-medium* at the print-point.

(1) Note. The type-face may be one of many type-faces on a type-head* containing a type-set-assemblage*, in which event case-shift occurs by moving the type-head so that the chosen type-face will be in position to be impacted. Or the type-face may be movable relative to a type-bar that carries only two (or three) type-faces.

269 By shifting type-bar or type-face on type-bar:
This subclass is indented under subclass 268. Subject matter wherein case-shift* is effected by moving a type-bar*, together with the type-face* supported thereby relative to the platen* or by moving a type-face relative to the type-bar that supports the type-face, thereby moving the type-face relative to the platen.

269.1 By pivoting type-face relative to type-bar:
This subclass is indented under subclass 269. Subject matter wherein case-shift* is effected by moving a type-face* with respect to the type-bar* that supports the type-face thereby moving the type-face relative to the platen*, the movement being oscillatory.

270 Mounted on type-bar support (e.g., guide pin, type-bar-segment , etc.):
This subclass is indented under subclass 268. Subject matter wherein the typewriter is provided with structure that sustains the type-bar* members in an operative relationship to enable the type-bars, and the type-face* elements carried by the type-bars, to move from rest position to print-point* position as each type-bar is selected to impact its type-face against the record-medium*, which structure also enables movement of the type-set-assemblage* that is sustained on the structure, the movement of the

type-set-assemblage being for the purpose of effecting case-shift*.

(1) Note. In some of the typewriters of this subclass the type-bars are mounted on a type-bar-segment* which moves so that a chosen type-face of the selected type-bar will impact the record-medium.

270.1 Ring hanger support:
This subclass is indented under subclass 270. Subject matter wherein said structure includes a generally annular member to which the type-bar* members are connected.

(1) Note. The ring hanger of this subclass is usually used in a top-strike typewriter or bottom-strike typewriter.

270.2 Including ball-bearing support:
This subclass is indented under subclass 270. Subject matter wherein said structure includes a mechanical assemblage known as a "ball bearing" to which the type-bar* members are connected for movement.

(1) Note. A ball bearing is a device in which a shaft or journal turns upon a number of balls running in an annular track.

270.3 Including pivoted-lever support (e.g., cantilever spring, etc.):
This subclass is indented under subclass 270. Subject matter wherein said structure includes elements that are fulcrumed for arcuate movement, which elements the type-bar* members are connected for movement of the type-bars from rest position to print-point* position.

271 By choosing from one of a plurality of type-bars operated by a single key:
This subclass is indented under subclass 251. Subject matter wherein choice of which form of type-face* (i.e., upper-case* form or lower-case* form) is to be impressed against the record-medium* is made from one of a group of type-bar* members any of which members may be chosen to be actuated by depressing one particular character* key* element of the key-board*.

272 Including key attachment for case-shift:
This subclass is indented under subclass 251. Subject matter wherein case-shift* is effected by a key* element on the key-board* that is pressed, the pressing of the case-shift key being caused by a device that is connected to the typewriter, which device is actuated or operated by the typist.

273 Operated by user's leg, (e.g., foot, knee, etc.):
This subclass is indented under subclass 272. Subject matter wherein said device is energized by a lower limb of the typist.

(1) Note. A typewriter of this subclass is usually intended to increase typing speed by giving the typist the capability of actuating case-shift* by a key* element that is pressed by action of a foot, knee, etc., rather than pressed by a finger. A typewriter for handicapped persons is found in subclass 87 above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
87, and see (1) Note above.

274 For locking case-shift mechanism in position (e.g., rebound lock, cam, etc.):
This subclass is indented under subclass 251. Subject matter wherein said relative movement effects a rearrangement of parts on the typewriter to at least two locations relative to the typewriter frame, and wherein significance is attributed to means for maintaining the particular arrangement of parts as desired by the typist until another location of said parts is desired.

(1) Note. In the typewriter of this subclass, the case-shift* mechanism is held by a cam, or is prevented from rebounding out of position into an undesired position. Also included herein is a typewriter wherein the platen* is locked in a raised position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
663, for other locking mechanism in a typewriter.

275 For locking platen in fore-and-aft position (e.g., by overcenter spring, etc.):
This subclass is indented under subclass 274. Subject matter wherein the platen* of the typewriter during case-shift* is in a direction that extends between the front and rear of the typewriter and substantially parallel to the bottom of the typewriter, and said two locations are the extreme front and rear of the extent of movement of the plate, and wherein significance is attributed to means for maintaining the platen in its extreme front or rear location until another location is desired by the typist.

276 For locking shift-key lever in depressed position:
This subclass is indented under subclass 274. Subject matter wherein the case-shift* function is accomplished by pressing a particular key* element known as a shift key, which shift-key element is connected to a fulcrumed bar for movement of the bar when the shift-key element is pressed by a typist, and wherein significance is attributed to means for maintaining the shift key in the position it has been moved to when it is pressed by the typist.

276.1 By toggle-linkage:
This subclass is indented under subclass 276. Subject matter wherein said means includes a toggle-linkage* connected between said fulcrumed bar and the typewriter.

276.2 By means pivoted on shift-key lever:
This subclass is indented under subclass 276. Subject matter wherein said means includes a component that is oscillatably mounted on said fulcrumed bar.

277 Including limit stop (e.g., block, chain, etc.):
This subclass is indented under subclass 251. Subject matter wherein said relative movement is halted at the extreme ends of the desired movement by the interengagement of a component that moves with the case-shift* mechanism and a component that is fixed to the typewriter.

278 Including limit screw:
This subclass is indented under subclass 277. Subject matter wherein at least one of said components is an elongated helically threaded member that is rotatable about an axis extending in its elongated dimension and is movable along its axis as it is rotated about its axis.

279 CONTROL OF PRINT POSITION ALONG PRINT-LINE BY SIGNAL GENERATED BY PROGRAMMED-CONTROL-SYSTEM:
This subclass is indented under the class definition. Subject matter wherein a programmed-control-system* is provided for transmitting instructions to a typewriter mechanism to govern the location where a type-face* element will be impressed against the record-medium*, the location being along a path parallel to the print-line*.

280 Program is indicia on auxiliary member:
This subclass is indented under subclass 279. Subject matter wherein the instructions are in the form of marking or openings on an element which is supplementary to the record-medium*.

281 Member is punched tape or card:
This subclass is indented under subclass 280. Subject matter wherein the supplementary element is an elongated, relatively narrow strip of material, or a sheet of material, said material having apertures formed therein in a particular pattern, and the apertures representing the instructions governing the operation of the typewriter.

282 Program is indicia on record-medium:
This subclass is indented under subclass 279. Subject matter wherein the instructions are in the form of markings or openings on the record-medium* itself.

283 CARRIAGE OR CARRIAGE-MOVING OR MOVEMENT-REGULATING MECHANISM:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to the carriage* of a typewriter, or to movement of the carriage, or to control of movement or stoppage of movement of the carriage, which movement occurs along a line that is parallel to the print-line*.

(1) Note. The definition of the term “carriage” in the Glossary, section III, includes a discussion of the movement referred to the above, the direction of

such movement, and the difference between a "platen* carriage" and a "type-head* carriage".

284 For stopping carriage in tabular position (e.g., column-set positions):
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused to be moved in a direction that enables the character* symbols to be imprinted in succession (i.e., the character-space* direction), and wherein the movement in said direction is controlled such that after the carriage has moved past a predetermined number of character-space distances, the carriage will be stopped in a position corresponding to a print-point* for the start of a column of character symbols.

(1) Note. The term "column" refers to a plurality of print-lines* arranged one above or below another in vertical array (i.e., a particular character of each successive line of type being equally spaced from one of the side edges of a sheet or web record-medium*).

(2) Note. The term "tabular" refers to at least one, but usually a plurality of columns each arranged in vertical array and each parallel to a side edge of a sheet or web as well as to other column(s) that are produced on the sheet or web.

(3) Note. In the typewriter of this subclass the tab-stop elements on the tab-rack* are set in active position to effect typing of a column. The typewriter is thus said to be "column set".

285 In denominational positions:
This subclass is indented under subclass 284. Subject matter wherein the typewriter is used to imprint one or more columns of numeral digits, and wherein the carriage* is stopped in a position such that the decimal point of a succession of numbers typed one below the other(s) will be arranged in vertical array.

(1) Note. In the instance of a "denominational" column the left character* of successive print-lines* will not necessarily be one below the others, depending on whether the left character represents a "hundreds" digit, a "tens" digit, etc. Rather the decimal point will be in vertical array. Moreover, in the instance where the decimal point of successive numbers is not actually imprinted, but is merely understood to be present, the particular character is the basis of the columnar arrangement, is in fact the "units" digit of the successive numbers.

285.1 And column-set positions:
This subclass is indented under subclass 285. Subject matter wherein the carriage* may be stopped in a column position and then be further moved and again stopped in a denominational position within said column.

(1) Note. The term "column" is discussed in (1) Note of subclass 284; the term "column set" is discussed in (3) Note of subclass 284; and the term "denominational" is discussed in (1) Note of subclass 285. The typewriter of this and indented subclasses combine features of two forms of tabulation, that is, carriage is brought to a selected column field and the carriage is further brought to a selected denominational position within the selected column field.

285.2 Tab-rack stop intercepted by denominational-stop:
This subclass is indented under subclass 285.1. Subject matter wherein the carriage* is stopped by the interengagement of a selected denominational-stop* with a "tab stop" that is mounted on a tab-rack*.

(1) Note. The term "tab stop" is discussed in the definition of tab-rack in the Glossary, section III.

285.3 Tab stops grouped in stepped fashion:
This subclass is indented under subclass 285.2. Subject matter wherein the "tab stop" elements are arranged on the tab-rack* in sets or assemblages of tab stops, the individual tab stops of each set being in an ascending or descending scale of individually varying length in each assemblage, and each set or assemblage being arranged for a different "columnar" arrangement.

(1) Note. The term "tab stop" is discussed in the definition of tab-rack in the Glossary, section III, and the term "columnar" is a variation of the term "column" which is discussed in (1) Note of subclass 284.

285.4 With control of zero or space for decimal point:
This subclass is indented under subclass 285. Subject matter wherein significance is attributed to the suppression or regulation of the imprinting of a "zero" digit in a sequence of number digits, or wherein significance is attributed to the regulation of the occurrence of a character-space* associated with a "decimal point" in a sequence of number digits or the regulation of the decimal point associated with a sequence of number digits.

285.5 With reverse-direction movement of carriage:
This subclass is indented under subclass 285. Subject matter wherein the carriage* is moved in a direction opposed to the normal character-space* direction during the imprinting of numeral digits in denominational columns.

(1) Note. In this subclass the number is imprinted from the most significant to the least significant digit by backspacing the carriage from right to left along the print-line*, or the number is imprinted so that the first denominational digit typed is the least significant digit.

285.6 Helically mounted denominational-stop(s):
This subclass is indented under subclass 285. Subject matter wherein significance is attributed to an arrangement of denominational-stop* components, the components being carried on a drum or cylinder in an array that has the configuration of a helix around the surface of the drum or cylinder.

286 Shiftable denominational-stop(s):
This subclass is indented under subclass 285. Subject matter wherein significance is attributed to the movement of a denomination-stop* or the interengagement of said denominational-stop with a tab-stop element on a tab-rack*.

286.1 Step-shaped denominational- or tab-stop(s):
This subclass is indented under subclass 286. Subject matter wherein either the denominational-stop* components or the "tab-stop" elements on the tab-rack* are arranged in sets or assemblages, the components or elements of each set being in an ascending or descending scale of individually varying length in each assemblage.

286.2 Engaging movable tab-rack means:
This subclass is indented under subclass 286. Subject matter wherein significance is attributed to the interengagement of a denominational-stop* with a tab-stop element on a tab-rack* or to the movement of said tab-stop element from inactive position to active position or return from active to inactive position.

286.3 With latch or lock means:
This subclass is indented under subclass 285. Subject matter wherein significance is attributed to means for temporarily securing against unwanted or undesired movement any parts of the mechanism that is included in the tabulator mechanism for denominational column(s).

SEE OR SEARCH THIS CLASS, SUBCLASS:
663, for other locking mechanism in a typewriter.

287 Column set by control of mutilated carriage-rack:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is caused to move quickly to its "column-set" position by use of a carriage-rack* that has gaps in the teeth or notches of the bar that is part of the carriage-rack, the length of the gap determining the length of the character-space* distance that is to be jumped in moving the carriage to the column-set position.

288 Column set by control of tab-rack:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is caused to move to its "column-set" position by moving a tab-rack* component from an inoperative position to an operative position, the tab-rack having tab-stop elements thereon which are active to govern or regulate the column-set position.

289 Column set by control of tab-stops or column stops or counter-stops:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is caused to be moved to its "column-set" position and stopped in that position by "tab-stop" elements mounted on a tab-rack*, selected of said elements having been moved from a "clear" position to a "set" position, or the carriage is stopped in a column-set position by a "counter-stop" element.

(1) Note. For further discussion of the terms used and their operation, see the definition of tab-rack in the Glossary, section III.

289.1 Tab-stops grouped in stepped fashion:
This subclass is indented under subclass 289. Subject matter wherein the "tab-stop" elements are arranged in sets or assemblages of tab stops on the tab-rack*, the individual tab stops of each set being in an ascending or descending scale of individually varying length in each assemblage, and each set or assemblage being arranged for a different "columnar" arrangement.

290 Forward or reverse tabulation:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is caused to be moved and is caused to be stopped in a position corresponding to a print-point* for the start of a column of character* symbols, the movement occurring in a character-space* direction, or the carriage is caused to be moved in a direction opposite to the character-space direction and caused to be stopped in a position corresponding to a print-point for the end of a column of character symbols.

(1) Note. The typewriter of this subclass is sometimes also provided with a carriage-shuttling mechanism, which enables the carriage to travel in a forward or a reverse direction directly between tabular positions without having to first return to home position following a tabulating movement.

291 With impact cushion or rebound check:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is moved in a first direction and then stopped in a tabular position, and wherein the stopping of the carriage is regulated by a component or assemblage that is yieldable or limited in the movement of said component or assemblage when used to stop the carriage, whereby the energy of movement of the carriage is absorbed and/or any movement in a direction opposite to said first direction is inhibited.

292 With control of carriage velocity:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is moved and then stopped in tabular position, and wherein the speed of movement of the carriage is regulated.

293 By multiple pitch tab-racks or mutilated gear:
This subclass is indented under subclass 284. Subject matter wherein the carriage* is moved and then stopped in tabular position, the movement and stopping being regulated or governed by either (a) a tab-rack* component in which one plurality of tab-stop elements are spaced to one pitch* distance and another plurality of tab stops are spaced to another pitch distance, or a plurality of tab-racks, each tab-rack having tab-stop elements spaced to a different pitch from one from another, or (b) a toothed driving member having gaps in the teeth of the member.

294 Stop-setting or stop-clearing mechanism:
This subclass is indented under subclass 284. Subject matter wherein significance is attributed to structure for causing movement of a "tab-stop" element from a passive position (i.e., a position at which it will not engage with a "counter-stop" element) to an active (i.e., "set") position (i.,e., a position at which it will engage with a counter-stop element to stop a moving carriage* in a "tabular" position), or for causing movement of a tab-stop element from an active position to a passive (i.e., "clear") position, or wherein significance is attributed to structure for causing movement of a counter-stop element from a passive position to an active position or for causing movement

of a counter-stop element from an active position to a passive position.

(1) Note. The terms "tab-stop" element and "counter-stop" element have been discussed in the definition of tab-rack* in the Glossary, section III, and the term "tabular" has been discussed in the definition of tab* as well as in (2) Note to the definition of subclass 284 above.

(2) Note. This subclass provides for a typewriter wherein the tab stop(s) is/are cleared, i.e., moved from active position to inactive position.

294.1 With stop magazine (i.e., for supply of stops):
This subclass is indented under subclass 294. Subject matter wherein the typewriter is provided with a receptacle in which the "tab-stop" elements are contained ready for use, from which receptacle the tab stops are removed to be used for use in the tabulating mechanism, and to which receptacle the tab stops are returned after use in the tabulator mechanism.

294.2 With key-locking mechanism:
This subclass is indented under subclass 294. Subject matter wherein the typewriter is provided with means to prevent activation of the key* element that effects tabulation or the key element that effects any action or function* other than the setting or clearing of a "tab-stop" element during the time that the tab stop is cleared or set.

SEE OR SEARCH THIS CLASS, SUBCLASS:
663, for other locking mechanism in a typewriter.

294.3 Drum-mounted tab-stops:
This subclass is indented under subclass 294. Subject matter wherein the "tab-stop" elements are carried on a cylindrical member or on a segment of a cylindrical member, either on the inner or the outer periphery of the member or on the radial surface of the member.

295 Stop setting by linear shift or tab-stop or counter-stop:
This subclass is indented under subclass 294. Subject matter wherein the "tab-stop" element or the counter-stop element is set into its active position by moving the tab stop or the counter stop along a straight-line path relative to the structure that supports the element.

295.1 Stop shifts horizontally from tab-rack:
This subclass is indented under subclass 295. Subject matter wherein the "tab-stop" element is set into an active position by moving the tab stop forwardly or rearwardly relative to the tab-rack* component that carries the tab-stop elements.

295.2 Stops shifts laterally along tab-rack:
This subclass is indented under subclass 295. Subject matter wherein the "tab-stop" element is set into one position or another position to accomplish the tabulation by moving the tab stop along the length of the tab-rack* component that carries the tab-stop elements.

296 Stop setting by movement of tab-rack:
This subclass is indented under subclass 294. Subject matter wherein the tab-rack* of the typewriter is movable from one position to another relative to the carriage* of the typewriter, and wherein the "tab-stop" element on the tab-rack is set into active position by moving the tab-rack.

296.1 Tab-rack rotates about its axis:
This subclass is indented under subclass 296. Subject matter wherein the movement of the tab-rack* is a turning movement that occurs about a center that extends through the tab-rack component along the length of the component.

296.2 Plural tab-racks:
This subclass is indented under subclass 296. Subject matter wherein the typewriter is provided with more than one tab-rack* component.

297 Stop setting by partial rotation of tab stop relative to tab-rack:
This subclass is indented under subclass 294. Subject matter wherein the "tab-stop" elements are mounted on a tab-rack* component for arcuate motion of the tab stops with respect to the

tab-rack, and wherein the tab-stop element is set into active position for tabulation by moving the tab stop with such arcuate motion.

297.1 Stop setting by pivoting pawllike stop:
This subclass is indented under subclass 294. Subject matter wherein the "tab-stop" element is set into active position for tabulation by moving the tab-stop element with an arcuate movement.

(1) Note. The tab stop is usually hook-shaped and has a pivot axis on the end remote from the hook.

298 Tab-stop or tab-rack structure, per se:
This subclass is indented under subclass 284. Subject matter wherein significance is attributed to the conformation or other characteristics of the tab-stop element, per se, or the tab-rack* component, per se.

299 With rotatable type wheel for repeat printing in response to carriage movement:
This subclass is indented under subclass 283. Subject matter wherein the typewriter is provided with a type-member* in the form of a disc that turns about an axis and bears on the edge of the disc a plurality of type-face* elements all of which type-faces imprint the same character* symbol on the record-medium* when the edge of the disc is impressed against the record-medium, and wherein the typewriter is provided with means to urge the disc against the record-medium as the carriage* is moved in a character-space* direction, whereby as the carriage so moves as the disc is impressed against the record-medium, a series of the same character symbol is imprinted on the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
21, for a liner responsive to carriage movement.

300 Key-actuated mechanism for nonfeed of carriage (e.g., "silent" key, locking carriage, etc.):
This subclass is indented under subclass 283. Subject matter wherein the carriage* is normally caused to be moved in a direction that enables the character* symbols to be imprinted in succession (i.e., the character-space* direction) by or concurrently with successive pressing of successive character key* elements, but wherein significance is attributed to a mode of operating the typewriter whereby pressing of a particular key element will not cause movement of the carriage.

(1) Note. The purpose of this mechanism is to permit the imprinting of a character* symbol without an accompanying character-space* movement of the carriage, thereby permitting two or more symbols to be imprinted at the same print-point*. The mechanism thus permits a letter and an accent mark, or a letter and a vowel symbol, or two different letters (these being only exemplary of the possibilities), to be imprinted at the same print-point.

301 By disabling carriage-escapement mechanism:
This subclass is indented under subclass 300. Subject matter wherein the nonfeed or the nonmovement of the carriage* is caused by temporarily making the normal carriage-feed mechanism ineffective to move the carriage.

(1) Note. For discussion of how the normal carriage-escapement mechanism operates, see the definition of subclass 329.

302 By key actuated independently of carriage feed:
This subclass is indented under subclass 300. Subject matter wherein the nonfeed or nonmovement of the carriage* is caused by the pressing of a special key* element on the keyboard*, which special key is used only to prevent carriage movement and has no other effect on the carriage movement.

303 For varying carriage feed:
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused to be moved in a direction that enables the character* symbols to be imprinted in succession (i.e., the character-space* direction), and wherein the movement in said direction is regulated to occur in irregular or unequal increments of movement, the increments corresponding to variable character-space distances or variable word-space* distances.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10, for a variable carriage-feed mechanism used in a "justification" typewriter.

304 For kerning or overlap imprinting:

This subclass is indented under subclass 303. Subject matter wherein the movement of the carriage* in the character-space* direction is regulated to enable (a) imprinting a first character* symbol in a first character-space, moving the carriage to a distance less than a full character-space distance, and imprinting a second character different from the first character partly within the character-space of the first-character, or (b) imprinting a first character symbol in a first character-space, moving the carriage a very short distance relative to the first character-space, and imprinting the first character again almost within the first character-space, but only slightly displaced from the first character.

(1) Note. The operation described in (a) above is known as "kerning" and is sometimes used to form a compound letter symbol out of two standard letter symbols. The operation described in (b) is known as overlap imprinting and is sometimes used to form a "boldface" letter symbol.

SEE OR SEARCH THIS CLASS, SUBCLASS:

210, for a ribbon used for boldface typing.

305 By force-feed or screw-feed mechanism:

This subclass is indented under subclass 303. Subject matter wherein the carriage* is caused to be moved in a carriage-feed (i.e., character-space*) direction through irregular increments by a mechanism that positively engages the carriage or a portion affixed thereto and that positively moves in a direction to thereby move the carriage therewith in said direction, or wherein the carriage is caused to be moved by the rotation of a helically threaded member.

SEE OR SEARCH THIS CLASS, SUBCLASS:

328, for force-feed mechanism in an equal increment carriage feed.

306 Proportional to variable widths of imprinted characters:

This subclass is indented under subclass 303. Subject matter wherein the irregular or unequal increments of movement of the carriage* correspond to the various widths of the character* symbols that are imprinted on the record-medium*.

(1) Note. In the definition of the term character-space* in the Glossary, section III, there is a discussion of the reason for variable carriage feed. Briefly, in this mode of operation the carriage is moved along the print-line* to the extent that a particular character extends along the print-line. Therefore the distances between adjacent characters are more nearly equal one to another, and the resulting text appears uniform and gives a pleasing appearance.

306.1 By settable elements (e.g., pins, bars, slides, etc):

This subclass is indented under subclass 306. Subject matter wherein the irregular increments of carriage* movement are caused by drive means that includes a movable member that is provided with components that may be set into active position to engage with another portion of the drive means, which component may be cleared out of active position so as not to engage with the other portion of the drive means, the selection of the amount of increment of carriage movement being made by setting or not setting the components.

306.2 By ratchet wheel and controlled pawl:

This subclass is indented under subclass 306. Subject matter wherein the irregular increments of carriage* movement are caused by drive means that includes a pawl* that is oscillated and caused to move into engagement with the teeth of a ratchet* in the form of a ratchet wheel.

(1) Note. The term "ratchet wheel" is defined in the definition of ratchet.

306.3 Including multiple pawls:

This subclass is indented under subclass 306.2. Subject matter wherein the drive means is provided with a plurality of pawl* members.

306.4 And multiple wheels:
This subclass is indented under subclass 306.3. Subject matter wherein the drive means is also provided with a plurality of ratchet wheels.

307 By ratchet rack and controlled pawl:
This subclass is indented under subclass 306. Subject matter wherein the irregular increments of carriage* movement are caused by drive means that includes a pawl* that is oscillated and caused to move into engagement with the teeth of a ratchet* in the form of a ratchet rack.

(1) Note. The term "ratchet rack" is defined in the definition of ratchet.

307.1 Including multiple pawls:
This subclass is indented under subclass 307. Subject matter wherein the drive means is provided with a plurality of pawl* members.

307.2 By cooperating toothed members (e.g., gear, segment, rack, etc.):
This subclass is indented under subclass 306. Subject matter wherein the irregular increments of carriage* movement are caused by drive means that includes at least two components, each of which is formed with notches or teeth, the notches of one component intermeshing with the notches of the other so that movement of one component is transmitted to the other component.

(1) Note. Included in this subclass are drive means having gears or differential gears, or gear and rack. or gear segment and gear, in many arrangements of such components.

308 Carriage backspace mechanism:
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused to be moved in a direction opposite to the typing (i.e., character-space*) direction that enables the character* symbols to be imprinted in succession, and wherein the movement in said opposite direction is regulated to occur in increments corresponding to character-space distances but in the direction opposite to the character-space direction.

(1) Note. The backspace increments may be regular (i.e., corresponding to equal character-space distances), or the backspace increments may be irregular or unequal or variable (i.e., corresponding to variable character-space distances, mechanism for which is found in subclass 303).

309 Backspace proportional to variable width of imprinted characters:
This subclass is indented under subclass 308. Subject matter wherein the carriage* is caused to be moved in irregular or unequal increments, the increment of movement for any particular movement corresponding to a variable character-space* distance equivalent to the various widths of the character* symbols that were imprinted on the record-medium* just prior to the need for backspacing.

(1) Note. See the definition of character-space in the Glossary, section III, for a discussion of the need for variable carriage feed. This discussion is amplified in (1) Note to the definition of subclass 306. In the typewriter of this subclass the backspace distance is the same amount, but in the opposite direction, as the variable character feed, and is for the purpose of returning the carriage to exactly the same print-point* that the carriage was before a particular character was imprinted.

310 Including powered drive means:
This subclass is indented under subclass 308. Subject matter wherein the carriage* is caused to be moved by way of energy supplied to the typewriter by other than the typist.

(1) Note. The typewriter of this subclass is powered by such energy as an electric motor, a solenoid, a continuously rotated power roll the power of which is intermittently applied, etc.

311 Including pawl and escapement wheel:
This subclass is indented under subclass 308. Subject matter wherein the carriage* is caused to be moved by the actuation of a key* element that moves a pawl* that interengages with one

of the teeth of a toothed wheel to drive the carriage in a backspace direction.

312 Including pawl and escapement rack:
This subclass is indented under subclass 308. Subject matter wherein the carriage* is caused to be moved by the actuation of a key* element that moves a pawl* that interengages with one of the teeth of a ratchet* rack to drive the carriage in a backspace direction.

313 Carriage-return mechanism:
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused to be moved in a direction opposite to the typing (i.e., character-space*) direction that enables the character* symbols to be imprinted in succession, and wherein the movement in said opposite direction is regulated to retrogress the carriage back to the beginning of a print-line*.

(1) Note. The carriage is usually returned until it is stopped by a margin* regulator or margin-stop* element. In some typewriters the carriage return may be modified to stop at a preset position to permit the first character of a new print-line to be indented from the margin*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
34, for carriage return in a flat-platen* typewriter.

314 With concurrent line-spacing:
This subclass is indented under subclass 313. Subject matter wherein the record-medium* is moved in a line-space* direction during approximately the same time that the carriage* is returned to the beginning of a print-line*.

(1) Note. The line-spacing movement may occur at the beginning or at the end or during the carriage-return movement.

314.1 Using electromagnetic drive:
This subclass is indented under subclass 314. Subject matter wherein the carriage*-return movement is powered by a solenoid or similar electromagnetic means.

314.2 For selected number of line-spaces:
This subclass is indented under subclass 314. Subject matter wherein the record-medium* is moved in a predetermined number of line-space* increments during the carriage-return movement, and wherein the predetermined number may be changed at the will of the typist.

314.3 With disconnection of return by margin-stop:
This subclass is indented under subclass 314. Subject matter wherein significance is attributed to disablement of the mechanism that returns the carriage* when the carriage engages the margin* regulator that is located at the beginning of a print-line*, wherein the carriage-feed drive may regain control of the carriage movement.

(1) Note. The term “margin regulator” is defined in the definition of subclass 342.

314.4 Initiated by user's leg or foot:
This subclass is indented under subclass 314. Subject matter wherein significance is attributed to starting the return of the carriage* by a movement of a lower limb of the typist.

314.5 Initiated by actuator adjacent key-board:
This subclass is indented under subclass 314. Subject matter wherein significance is attributed to starting return of the carriage* by movement by a typist of a key* element on or near the key-board*.

(1) Note. In most manually powered typewriters, the carriage return is by way of a lever adjacent to the platen*. The typewriter of this subclass is usually electrically powered, and pressing of a key initiates the return.

314.6 By return-clutch means:
This subclass is indented under subclass 314. Subject matter wherein the carriage* return is powered by way of a clutch mechanism that is provided in the typewriter especially for carriage-return purposes.

(1) Note. A “clutch” is a mechanism for intermittently connecting a rotating driving shaft to a driven shaft by way of

faces that are connected, one face to each shaft, and intermittently connected to one another.

315 Responsive to carriage position:
This subclass is indented under subclass 313. Subject matter wherein the carriage* return is initiated as a result of the carriage having moved in the character-space* direction to a predetermined location relative to the typewriter.

(1) Note. The typewriter of this subclass is usually electrically powered.

316 Partial return (e.g., for start of paragraph, etc.):
This subclass is indented under subclass 313. Subject matter wherein significance is attributed to a return of the carriage* to a position short of the normal or usual return to a margin* of the page*.

(1) Note. The partial return is usually to a position where a new paragraph will be started at a location on the record-medium* that is indented from the margin of the text.

317 Including power drive (e.g., electric, spring, etc.):
This subclass is indented under subclass 313. Subject matter wherein the carriage* is returned by way of energy applied to the mechanism other than energy supplied by the typist at the time of carriage return.

317.1 For bidirectional drive:
This subclass is indented under subclass 317. Subject matter wherein the carriage* is moved in its return movement and in its feed movement by way of energy applied to the mechanism other than energy supplied by the typist.

317.2 By spring-driven motor:
This subclass is indented under subclass 317. Subject matter wherein the carriage is moved in its return movement by way of energy that is stored in a resilient or yieldable component connected to a drive train that moves the carriage.

(1) Note. The power for winding the spring to store energy that will subsequently be used during typing to return the carriage whenever so desired by the typist maybe supplied by an electric motor or may be supplied by the user of the typewriter. Disclosures of this form of spring energy are properly classified herein because the energy is stored and not applied by the typist at the time of carriage return.

317.3 Powered via engagement of a clutch:
This subclass is indented under subclass 317. Subject matter wherein the carriage* is moved in its return movement by way of energy that is applied by way of a clutch connection.

(1) Note. A "clutch" is a mechanism for intermittently connecting a rotating driving shaft to a driven shaft by way of faces that are connected, one face to each shaft, and intermittently connected to one another.

318 Initiated by actuator adjacent key-board:
This subclass is indented under subclass 313. Subject matter wherein significance is attributed to starting return of the carriage by movement by a typist of a key* element on or near the key-board*.

319 Carriage-feed mechanism (e.g., escapement, etc.):
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused or enabled to be moved in a direction that enables the character* symbols to be imprinted in succession (i.e., the character-space* direction), and wherein the movement in said direction is regulated to occur in regular or equal increments of movement, each increment corresponding to a character-space distance or a word-space* distance.

320 For carriage on which a type-head-carrier is mounted:
This subclass is indented under subclass 319. Subject matter wherein the carriage* supports a type-head-carrier* for movement of both the carriage and the type-head-carrier in said direction that enables the character* symbols to be imprinted in succession (i.e., the character-space* direction).

(1) Note. As discussed in the Glossary, section III, under the definition of carriage,

in some typewriters the record-medium* is held by a platen* that is mounted on a "platen carriage" that is moved in said direction (i.e., the character-space direction) thereby moving the record-medium for character-space and word-space* distances.

In the typewriter of this subclass the record-medium does not move during the imprinting of characters symbols. Instead the type-face* elements are impacted against a record-medium at a different print-point* for each character. The type-face elements are on a type-head* that is mounted on a type-head-carrier that is supported on a "type-head carriage" that moves relative to the stationary record-medium, thereby moving the successively impacted type-faces for character-space and word-space distances.

320.1 With concurrent movement of carriage for record-medium and carriage for type-head-carrier:

This subclass is indented under subclass 320. Subject matter wherein a typewriter is provided with two carriage* mechanisms, one of which carriage (i.e., a "platen carriage") supports a platen that holds a record-medium* for movement of both the platen and the record-medium in a character-space* direction and the other of which carriage (i.e., a "type-head* carriage") supports a type-head-carrier* for movement of both the type-head carriage and the type-head-carrier in a character-space direction.

(1) Note. As discussed in the Glossary, section III, under the definition of carriage, usually the direction of carriage feed for a platen carriage is from right to left, whereas the direction of carriage feed for a type-head carriage is from left to right (but note the note exceptions discussed in that definition).

321 With repeat spacing:

This subclass is indented under subclass 319. Subject matter wherein the carriage* is urged to be moved in successive increments of movement (the increments corresponding to character-space* distances) a plurality of said increments occurring upon the pressing of one key* element on the key-board*.

(1) Note. The typewriter of this subclass is usually one that is electrically powered, thus enabling repeat spacing with one pressing of a space key or space-bar*.

322 By electric or magnetic power:

This subclass is indented under subclass 319. Subject matter wherein the movement of the carriage* is caused by electricity or magnetism.

(1) Note. The electricity is supplied to an electric motor or to an electromagnet (e.g., a solenoid) which effects carriage-feed movements to the carriage. Also included in this subclass is a typewriter wherein a spring motor is assisted by an auxiliary electric motor.

323 Carriage-feed in two directions (e.g., continuous typing in both directions):

This subclass is indented under subclass 319. Subject matter wherein the carriage* is urged in a first direction and the movement in said first direction is regulated as defined in subclass 319, and wherein said carriage is alternately urged in a second direction that is opposite to said first direction and the movement in said second direction is also regulated as defined in subclass 319.

(1) Note. A "print-line*" is usually formed by imprinting successive characters* in the order in which they are read. However, some typewriters are capable of imprinting successive characters in reverse order, that is, the first character imprinted is the last character of the print-line, the second character imprinted is the next-to-last character of the print-line, etc. In the typewriter of this subclass the first print-line may be imprinted in regular order and the second print-line may be imprinted in reverse order, the text being imprinted alternately from left to right, and then from right to left in "continuous" typing action.

323.1 In selected direction (e.g., for semitic language, etc.):
This subclass is indented under subclass 323. Subject matter wherein one of said first or second directions is chosen for the primary or significant direction of carriage* movement.

(1) Note. The purpose of this mode of operation is to imprint successive character* symbols in a character-space* direction that is opposite to that which is used in the usual typewriter. In most typewriters, characters are imprinted from left to right to conform to most European languages, therefore a platen carriage that moves the record-medium* effects movement of the platen carriage from right to left whereas a type-head carriage that moves a type-head-carrier effects movement of the type-head carriage from left to right. Certain Semitic languages, e.g., Arabic and Hebrew, are written from right to left, therefore in the typewriter of this subclass, the carriage movement feed direction is selectively changed to be reversed from the directions referred to above.

324 Word-space concurrent with typing of last character of word:
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to a carriage*-feed mechanism that produces a word-space* whenever the last character* symbol of a word* has been imprinted on the record-medium*.

325 By space-bar mechanism (e.g., separate connection to escapement), or paragraph-indentation key:
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to the actuation of a carriage*-feeding movement as a result of pressing a space-bar*-key* element, or wherein significance is attributed to the actuation of a carriage-feeding movement that moves the carriage a distance equivalent to a plurality of character-space* increments as a result of pressing a single key element.

(1) Note. The distance referred to is that needed to start a new paragraph in a text wherein the first letter of a paragraph is indented from the margin* of the body of the text.

326 With compensator for tilt of typewriter:
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to mechanism that counterbalances the force of gravity acting on a carriage* when the typewriter is inclined to the horizontal.

(1) Note. A typewriter is usually operated while it is in a horizontal position. The carriage therefore moves horizontally, and the weight of its mass does not affect its movement. However, if the typewriter is tilted and its carriage is moved along a line that is inclined to the horizontal, the weight of the carriage will affect its movement. Disclosures in this subclass provided for means to compensate for the weight of the carriage due to tilting of the typewriter.

327 For diagonal print-line:
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to a mode of operating a typewriter whereby successively imprinted character* symbols form a print-line* that is inclined relative to the top or bottom edge of a rectangular sheet.

(1) Note. The diagonal print-line is usually formed by concurrently feeding the carriage* and feeding the record-medium* between successive imprints of characters.

328 By force-feed or screw mechanism (e.g., direct drive, screw-biasing carriage, etc.):
This subclass is indented under subclass 319. Subject matter wherein the carriage* is caused to be moved in a carriage-feed (i.e., character-space*) direction by a mechanism that positively engages the carriage or a portion affixed thereto and that positively moves in said direction to thereby move the carriage therewith, or wherein the carriage is caused to be moved in said direction by a helically threaded element that is rotated and cooperates with another complementary element on the carriage to move the carriage.

(1) Note. In this subclass the carriage may be moved by a spring that is biased or tensioned by a screw, or the carriage may be moved by a pawl* engaging and moving a ratchet* wheel.

SEE OR SEARCH THIS CLASS, SUBCLASS:

305, for force feed in a variable-feed carriage mechanism.

328.1 Including pawl and toothed rack:

This subclass is indented under subclass 328. Subject matter wherein the carriage* is caused to be moved by a pawl* that engages in a notch between two teeth of a ratchet* rack, which rack is connected to the carriage to cause movement of the carriage when the pawl moves while in engagement with the rack.

(1) Note. The term "rack" as used in this definition is discussed under the definitions of pawl and ratchet in the Glossary, section III.

329 Carriage escapement controlled by pawl:

This subclass is indented under subclass 319. Subject matter wherein the carriage* is urged by a source of power to be moved in a direction for imprinting successive character* symbols on the record-medium* (e.g., a character-space* direction), and the movement in said direction is regulated by a mechanism that (a) restrains the carriage against movement, and (b) releases the carriage momentarily to be urged to move, and (c) again restrains the carriage against movement, which mechanism includes a member or members having movement relative to the carriage or to a portion connected thereto, the relative movement between the member(s) and carriage effecting the restraint and momentary release of the carriage to produce the increments of movement corresponding to character-space and word-space* distances.

(1) Note. The regulating mechanism defined above is usually a pawl* and ratchet* mechanism as these members are defined in the Glossary, section III.

(2) Note. Movement of the carriage during carriage feed is related to movement of the type-face* element to the print-point* for impressing the type-face against the record-medium*. These movements occur in various terms applied in the typewriter art. In all the sequences a typist initiates the operation by pressing a key* element which causes movement of a type-face (e.g., a type-face on a type-bar*, a type-face on a type-head*, etc.) from its rest position. In "full-drop" escapement the sequence is (a) the type-face is impressed at the print-point, (b) the carriage starts its movement through a full character-space distance, and (c) the carriage completes a character-space and stops. In a "half-drop" escapement the sequence is (a) the carriage starts its movement but stops momentarily approximately halfway in a character-space, (b) the type-face is impressed at the print-point, and (c) the carriage continues its movement through the remainder of the character-space. In "speed" escapement (also known as "reverse" escapement) the sequence is (a) the carriage starts its movement through a full character-space distance, (b) the carriage completes a character-space and stops, and (c) the type-face is impressed at the print-point. In all the sequences the type-face is returned to its rest position and the key* is also returned to its rest position. The differences between the various sequences are primarily in the time available to enable a type-bar (which carries the type-face element) to move from rest position to print-point position and back to rest position (a) as related to the time available for a next-actuated type-bar to perform the same movements without interference from the previously actuated type-bar, and (b) as related to the time available to move the carriage through a carriage space.

329.1 Means to ensure engagement of pawl at start of print-line (i.e., overbanking control):

This subclass is indented under subclass 329. Subject matter wherein significance is attributed to structure that will positively cause a pawl* of the regulating mechanism to contact the carriage* or a portion (e.g., a ratchet*) connected thereto whenever the carriage has been

properly positioned at the beginning of the print-line* (i.e., in most typewriters at the left margin* or the print-point* proper for the imprint of the first character* symbol of a print-line).

329.2 Carriage-feed initiated and completed during depression of character key (e.g., "speed" or "reverse" escapement):
This subclass is indented under subclass 329. Subject matter wherein a key* element that is used to cause imprint of a character* symbol is pressed, the pressing of said key element initiating (a) the movement of a type-face* from its rest position to the print-point*, and (b) the movement of the carriage* through a character-space* distance, and wherein the movement of the carriage is started and completed through a complete character-space before the type-face impacts the print-point.

(1) Note. The differences between "full-drop" escapement, "half-drop" escapement, and "speed" or "reverse" escapement are discussed in (2) Note to the definition of subclass 329 above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
330.2, for "half-drop" escapement and see (1) Note above.

329.3 Pawl rocker spring regulating device:
This subclass is indented under subclass 329. Subject matter wherein a pawl* is supported by a component, which component is mounted for oscillation relative to a carriage-rack* or to a ratchet* disc or wheel and is urged into engagement with the teeth or notches of the carriage-rack or the ratchet disc by a yieldable element, and wherein the force with the yieldable element urges the component is adjustable.

330 Via ratchet wheel connected to pinion and carriage-rack:
The regulating mechanism includes (a) a carriage-rack* affixed to the carriage*, and (b) a rotatable gear having teeth that are engaged with teeth or notches in the carriage-rack, and (c) a ratchet* that is in the form of a rotatable disc or wheel and is joined to the rotatable gear, and (d) a pawl* that cooperates with the ratchet, the assemblage of parts cooperating to effect the restraint and momentary release of the carriage.

330.1 And plural pawls:
This subclass is indented under subclass 330. Subject matter wherein the regulating mechanism includes more than one pawl* member.

(1) Note. Usually two pawls are provided, one of the pawls disengaging from between two adjacent teeth of a ratchet* momentarily, and the other of the pawls holding the ratchet against movement in excess of one increment.

SEE OR SEARCH THIS CLASS, SUBCLASS:
332.1, for escapement mechanism having plural pawls and one or more ratchet racks.

330.2 For half-drop escapement:
This subclass is indented under subclass 330.1. Subject matter wherein significance is attributed to an action of the pawl* and ratchet* mechanism that restrains, momentarily releases, and again restrains the movement of said carriage* to produce a "half-drop" escapement.

(1) Note. The term half-drop escapement is discussed in (2) Note to subclass 329 above, wherein the action of various forms of carriage escapement (including "speed" escapement) is discussed and compared.

SEE OR SEARCH THIS CLASS, SUBCLASS:
329.2, for "speed" escapement and see (1) Note above.

330.3 Mounted on pivotable pawl carrier or rocker:
This subclass is indented under subclass 330.1. Subject matter wherein said pawl* members are supported by a component, which component is mounted for oscillation relative to said ratchet* disc or wheel to enable one or another of the pawls to engage one or another of the teeth or notches of the ratchet disc or wheel, whereby the disc or wheel, and thereby the carriage*, is alternately restrained against move-

ment, released for movement, and restrained against movement.

330.4 Including pawl(s) fixed to rocker:
This subclass is indented under subclass 330.3. Subject matter wherein one or more of said pawl* members are integral with or fixedly secured to said component.

(1) Note. This subclass includes some typewriters wherein the component or rocker includes fixed offset pawls.

330.5 And slidable pawl:
This subclass is indented under subclass 330.4. Subject matter wherein at least one of said pawl* members is mounted for rectilinear movement relative to said oscillatable component.

330.6 Including pawl pivoted about axis parallel to rocker axis:
This subclass is indented under subclass 330.4. Subject matter wherein said component oscillates about a first axis and one of said pawl* members oscillates about a second axis that is parallel to said first axis.

330.7 Mounted on movable (e.g., rotatable, slidable) pawl carrier:
This subclass is indented under subclass 330.1. Subject matter wherein said pawl* members are supported by a component, which component is mounted for movement relative to said ratchet* disc or wheel to enable one or another of the pawls to engage one or another of the teeth or notches of the ratchet disc or wheel, whereby the disc or wheel, and thereby the carriage*, is alternately restrained against movement, released for movement, and restrained against movement.

(1) Note. The movement of the component or pawl carrier may be reciprocation or rotation.

330.8 Including particular structure of pawl (e.g., pivoted, unitary, with roller, etc.):
This subclass is indented under subclass 330.1. Subject matter wherein significance is attributed to the construction of manner or mounting of said pawl* member.

(1) Note. Included herein are typewriters wherein the pawl is pivoted in a particular way, or is a unitary member, or is provided with a roller at the ratchet*-engaging end thereof, etc.

331 Including plural ratchet wheels:
This subclass is indented under subclass 330. Subject matter wherein the regulating mechanism includes more than one ratchet* that is in the form of a rotatable disc or wheel.

331.1 Including particular structure of ratchet wheel:
This subclass is indented under subclass 330. Subject matter wherein significance is attributed to the construction of the rotatable ratchet* disc or ratchet wheel.

331.2 Including cushioned escapement support (e.g., rocker, pawl buffer, etc.):
This subclass is indented under subclass 330. Subject matter wherein significance is attributed to the construction of the support for the pawl* member or of the component on which the pawl is oscillatable, or of the ratchet* wheel with which the pawl cooperates, which construction is characterized in that it is provided with yieldable or resilient means.

(1) Note. The support absorbs excess movement or the force or shock of movement of the carriage* or its driving or escapement mechanism.

331.3 Including particular structure of mount for ratchet wheel (e.g., bearing, clutch, etc.):
This subclass is indented under subclass 330. Subject matter wherein significance is attributed to the construction of the support for the rotatable ratchet* disc or ratchet wheel that enables the disc or wheel to rotate.

332 Via toothed rack:
This subclass is indented under subclass 329. Subject matter wherein the regulating mechanism includes (a) a ratchet* that is in the form of a bar having teeth or notches along one of its sides, and (b) a pawl* that cooperates with the ratchet, the assemblage of parts cooperating to effect the restraint and momentary release of the carriage*.

(1) Note. In a "platen-carriage" typewriter (see the discussion of platen carriage in the definition of carriage in the Glossary, section III), the ratchet is usually a carriage-rack*. In a "type-head carriage" typewriter (see the discussion of type-head* carriage in the Glossary, section III) the ratchet [defined in (a) above] is usually fixed to the frame of the typewriter.

332.1 And plural pawls:
This subclass is indented under subclass 332. Subject matter wherein the regulating mechanism includes more than one pawl* member.

(1) Note. Usually two pawls are provided, one of the pawls disengaging from between two adjacent teeth of a carriage-rack* momentarily, and the other of the pawls holding the carriage-rack against movement in excess of one increment.

SEE OR SEARCH THIS CLASS, SUBCLASS:
330.1, for escapement mechanism having plural pawls and one or more ratchet* wheels.

332.2 Mounted on pivotable pawl carrier or rocker:
This subclass is indented under subclass 332.1. Subject matter wherein said pawl* members are supported by a component, which component is mounted for oscillation relative to a carriage-rack* to enable one or another of the pawls to engage one of the teeth or notches of the carriage-rack, whereby the carriage* is alternately restrained against movement, released for movement, and restrained against movement.

332.3 Mounted on movable (e.g., rotatable, slidable) pawl carrier:
This subclass is indented under subclass 332.1. Subject matter wherein said pawl* members are supported by a component, which component is mounted for movement relative to said ratchet* bar to enable one or another of the pawls to engage one or another of the teeth or notches of the ratchet bar, whereby the ratchet bar, and thereby the carriage*, is alternately restrained against movement, released for movement, and restrained against movement.

(1) Note. The movement of the component or pawl carrier may be reciprocation or rotation.

332.4 Including particular structure of pawl (e.g., slidable, pivoted, unitary, etc.):
This subclass is indented under subclass 332.1. Subject matter wherein significance is attributed to the construction or manner of mounting of said pawl* member.

(1) Note. Included herein are typewriters wherein the pawl is pivoted in a particular way, or is slidable relative to the carriage-rack* with which it cooperates, or is a unitary member, etc.

332.5 Including plural toothed racks (e.g., pivoted, etc.):
This subclass is indented under subclass 332. Subject matter wherein the regulating mechanism includes more then one ratchet* that is in the form of a bar having teeth or notches along one of its sides, or includes a bar having teeth or notches along more than one of its sides.

332.6 Including particular structure of rack (e.g., toothed, slidable, etc.):
This subclass is indented under subclass 332. Subject matter wherein significance is attributed to the construction of the ratchet* bar.

333 Universal-bar or actuator therefor:
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to the universal-bar* in the drive train of the carriage-feed mechanism or of any other mechanism of the typewriter, or to a means for moving the universal-bar.

(1) Note. Included in this subclass is a typewriter wherein the universal-bar is actuated by a key* lever.

333.1 Connected to actuator for another function:
This subclass is indented under subclass 333. Subject matter wherein the universal-bar* is part of the drive train for a function* of the typewriter in addition to the carriage*-feed function.

(1) Note. The term "carriage feed" is defined in the definition of subclass 319. The other function mentioned above may be the vibrator* for the ink*-ribbon* feed, or the ink-ribbon feed itself.

333.2 Adjustable:
This subclass is indented under subclass 333. Subject matter wherein significance is attributed to means for varying the relationship of the universal-bar* to the drive train of which it is a part.

333.3 Actuated by type-bar or type-bar action:
This subclass is indented under subclass 333. Subject matter wherein significance is attributed to a universal-bar* which is caused to be moved by a type-bar* or by the actuating mechanism of a type-bar.

334 Carriage-feed-release mechanism:
This subclass is indented under subclass 319. Subject matter wherein the carriage* is moved and the movement is controlled by a movement-regulating mechanism that engages the carriage or a portion affixed thereto, which mechanism may be temporarily disconnected from the carriage to enable unregulated movement of the carriage.

(1) Note. This subclass provides for a disclosure wherein the carriage may be disengaged from a carriage-feed spring which, per se, is provided for in subclass 336.

SEE OR SEARCH THIS CLASS, SUBCLASS:
553, for a line-space* actuator that also has an effect on the carriage-feed release.

334.1 By disengagement of clutch between ratchet wheel and pinion:
This subclass is indented under subclass 334. Subject matter wherein the regulating mechanism that enables carriage feed includes a rotatable gear having teeth with teeth or notches in a carriage-rack* and a ratchet* in the form of a rotatable disc or wheel that is joined to the rotatable gear, and also includes a clutch that connects the gear to the disc wheel, and wherein significance is attributed to means for disconnecting the clutch to disconnect the gear from the disc or wheel.

334.2 By disengagement of escapement pawl(s):
This subclass is indented under subclass 334. Subject matter wherein the regulating mechanism that enables carriage feed includes a pawl* or pawl members that engage with teeth or notches in a carriage-rack*, and wherein significance is attributed to means for disconnecting the pawl or pawls from the carriage-rack to enable temporary unregulated movement of the carriage*.

334.3 From carriage-rack:
This subclass is indented under subclass 334.2. Subject matter wherein the means for temporarily disconnecting the pawl* or pawl members from the carriage-rack* acts by moving the carriage-rack away from the pawl or pawl members.

335 With particular connection to carriage (e.g., gear train, pulley and strap, etc.):
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to means for enabling or causing carriage-feed movement, which movement is regulated to occur in regular or equal increments of movement, and which means is not provided for in previous subclasses.

(1) Note. Included herein are such means as gear drive, a pulley and strap connection, etc.

336 Spring-biasing carriage for feed:
This subclass is indented under subclass 319. Subject matter wherein significance is attributed to a yieldable element that urges the carriage* of a typewriter to be moved in a carriage-feed (i.e., character-space*) direction, the movement being regulated by a mechanism previously provided for in this schedule.

336.1 Torsion spring in rotatable barrel:
This subclass is indented under subclass 336. Subject matter wherein said yieldable element is in the form of an elongated member wound in a plurality of spiral convolutions housed within a hollow drum, one end of the member being fixed to the drum to effect rotation of the drum when the yieldable element is tensioned.

337 Carriage-retarder mechanism:
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused to be moved in either a character-space* direction or in a direction opposite to said character-space direction, and the movement in either of said directions in controlled to slow or decelerate said movement or to maintain a uniform rate of movement whereby acceleration is controlled.

338 Including governor responsive to speed or momentum:
This subclass is indented under subclass 337. Subject matter wherein said movement of the carriage* is controlled by a regulator that acts as a result of a tendency for the velocity of the carriage to increase, the action of the regulator being to inhibit said tendency.

338.1 Using centrifugal force:
This subclass is indented under subclass 338. Subject matter wherein the regulator utilized the tendency of a mass that is rotating about an axis to be impelled away from that axis by the rotation, the action of the regulator being to control the velocity of the carriage.

338.2 Using inertial force retarder (e.g., flywheel, weight, etc.):
This subclass is indented under subclass 338. Subject matter wherein the regulator utilizes the tendency of a mass that is in motion to remain in motion or the tendency of a mass that is at rest to remain at rest, the action of the regulator being to control the velocity of the carriage.

339 Using fluid or fluent-material retarder:
This subclass is indented under subclass 337. Subject matter wherein said movement of the carriage* is controlled by a regulator that utilizes the movement of a flowable substance as a means to control the velocity of the carriage.

(1) Note. The flowable substance used includes a gas, a liquid, or a fluent material such as sand or small particles in a device sometimes termed a “dashpot” or similar structure.

340 Using frictional retarder (e.g., strap, disc, drum, etc.):
This subclass is indented under subclass 337. Subject matter wherein said movement of the carriage* is controlled by a regulator that utilizes the motion of two surfaces in close contact with each other, and the consequent resistance to such motion due to the close contact, as a means to control the velocity of the carriage.

(1) Note. Among the various structures used as friction retarder or friction brake means are: a drum, a disc, a helically wrapped spring, a strap, etc., any of which cooperate with a surface moving relatively thereto for causing a frictional retarding force to be generated.

341 Carriage-buffer stop or rebound control:
This subclass is indented under subclass 337. Subject matter wherein significance is attributed to a regulator that is located at the end of travel of a carriage* and controls the stopping of the carriage when the carriage reaches the end of its travel, or inhibits a tendency for the carriage to bounce or retract from its stopping position when it reaches the end of its travel.

342 Margin-regulator (e.g., adjustable margin-stop) mechanism:
This subclass is indented under subclass 283. Subject matter wherein the carriage* is caused or enabled to be moved in either a character-space* direction or an opposite direction, and wherein significance is attributed to a margin-stop* for controlling the movement of the carriage in either of said directions by stopping the carriage at a preset point, which point is adjustable relative to the typewriter, and which point corresponds to either the left margin* or the right margin of the record-medium* that is being typed on.

(1) Note. In most typewriters the right-hand margin regulator (i.e., of a typewriter that imprints successive character* symbols from left to right) is usually combined with a mechanism to prevent further typing on the print-line*, although the preventing mechanism may be disengaged at the will of the typist to

enable imprinting of several additional characters on the same print-line.

SEE OR SEARCH THIS CLASS, SUBCLASS:
671+, for a lock responsive to the end of a type print-line.

343 With intermediate margin-stop:
This subclass is indented under subclass 342. Subject matter wherein the typewriter is provided with one margin-stop* for the left margin* and another margin-stop for the right margin, and is further provided with a third margin-stop between the one and the other margin-stops.

(1) Note. The third margin-stop is used selectively. That is, for a particular text, the typist may require the temporary use of a margin-stop located at a margin other than the usual left-hand or right-hand margin. The intermediate margin-stop is then used for this temporary purpose.

344 With other typewriter function controlled by margin-stop (e.g., signal, line-space):
This subclass is indented under subclass 342. Subject matter wherein said margin-stop* also regulates the action or nonaction of another typewriter function*.

(1) Note. In this subclass the margin-stop causes the ringing of a bell or the actuation of a signal in response to the travel of the carriage* to the end of a print-line* or the margin-stop causes platen*-increment rotation for line-spacing and the end of a carriage* movement to the end of a print-line.

345 Carriage-arrest function (e.g., "overbank"):
This subclass is indented under subclass 344. Subject matter wherein the carriage* is moved in a carriage-return direction and the movement in that direction is stopped in a controlled manner to prevent or inhibit shock to the mechanism or rebound from the stopping position.

346 Print-line locking function:
This subclass is indented under subclass 344. Subject matter wherein the carriage* is caused or enabled to be moved in a carriage-feed (i.e., character-space*) direction, and the movement in that direction is stopped by the margin-stop* and also causes the key* elements to be locked to prevent pressing any of the character* keys so that no further character symbols may be imprinted on the record-medium*.

(1) Note. The typewriter of this subclass is provided with a margin-stop to stop the carriage at the end of its print- line*. However, the margin stop may be released by a margin-stop-release key on the keyboard*, the pressing of which key will disengage the locking of the carriage and of the key elements so that several more characters may be imprinted on the print-line.

347 With multiple-pitch selector:
This subclass is indented under subclass 342. Subject matter wherein the typewriter is provided with means to determine the pitch* of the character-space* distances and to change the pitch by changing the carriage*-feed mechanism for different character-space distances and wherein significance is attributed to set the margin-stop* members in conformance with different pitches used for a particular size or font* of type-face*.

348 With release of margin-stop:
This subclass is indented under subclass 342. Subject matter wherein significance is attributed to selective disengagement of one or another margin-stop* member from its active carriage-stopping position, thereby to enable one or more character* symbols to be imprinted on the record-medium* to the right or to the left of the normal margin* of the text being typed.

349 Conjointly set or centrally spring biased:
This subclass is indented under subclass 342. Subject matter wherein the margin-stop* members at opposite ends of the carriage* or at opposite ends of the travel of the carriage are both moved to a new position at the same time, or wherein the movement of one or both of the margin-stop members is urged by a yieldable member toward the middle of the carriage or toward the middle of movement of the carriage.

350 On record-medium table or paper-finger:
This subclass is indented under subclass 342. Subject matter wherein the margin-stop* member is mounted on the support that holds the record-medium* or is mounted on the paper-finger* that helps to hold the record-medium to the platen*.

351 Margin-stop structure, per se:
This subclass is indented under subclass 342. Subject matter wherein significance is attributed to the structure of the margin-stop* member itself.

352 Carriage, per se, or guideway therefor:
This subclass is indented under subclass 283. Subject matter wherein significance is attributed to structure of the carriage* of the typewriter or to the structure of the rail or track or component(s) that enable the carriage to move relative to the typewriter during carriage feed, or carriage return of carriage-backspace motion of the carriage.

(1) Note. In many typewriters the carriage is a structure on which the platen* is supported or mounted for intermittent or incremental rotation of the platen to effect line-space* distances. In such typewriters the platen carriage intermittently moves the platen (and the record-medium* that is held thereto) along the print-line* to effect character-space* and word-space* distances. In other typewriters the type-head carriage* is a structure on which a type-head-carrier* is supported or mounted for movement of a type-head* that includes a multiplicity of type-member* or type-face* elements. In such latter typewriters the record-medium remains stationary during the imprinting of a print-line, and the type-head carriage intermittently moves the type-along the print-line to effect character-space and work-space distances.

353 Including auxiliary carriage:
This subclass is indented under subclass 352. Subject matter wherein the typewriter is provided with a main carriage* that supports a platen* and is also provided with a secondary or auxiliary carriage that supports the same or an auxiliary platen in cooperative relationship therewith.

(1) Note. A distinction should be made between the typewriter of this subclass, wherein the main and the auxiliary carriages cooperate in the same typewriter, and the typewriter of subclass 82 wherein plural platens may be independently supported in an assemblage of typewriters.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82, and see (1) Note above.

354 Guideway or bearings for carriage:
This subclass is indented under subclass 352. Subject matter wherein significance is attributed to the rail or track or component(s) associated with the carriage*, which component(s) enables the carriage to move relative to the typewriter during carriage feed, or carriage return, or carriage backspace motion of the carriage, or wherein significance is attributed to the journals, gudgeons, or assemblages that reduce the effects of friction between moving parts.

354.1 Guideway cooperating with ball bearings or roller bearings:
This subclass is indented under subclass 354. Subject matter wherein significance is attributed to the cooperative association of the rail or track with the journals, gudgeons, or assemblages, which assemblages include a bearing known as a ball bearing or a roller bearing.

(1) Note. The form of bearing for this and indented subclasses includes two annular members having an annular space therebetween, in which annular space a plurality of rollers or balls are provided. By this construction, one of the members is enabled to rotate relative to the other member, the rollers or the balls revolving and rotating within annular space.

354.2 Including bearing holder geared to carriage:
This subclass is indented under subclass 354.1. Subject matter wherein said bearings are provided with toothed portions, and a part of the carriage* is provided with other toothed portions, and wherein the toothed portions of the

bearings intermesh with the toothed portions of the carriage.

354.3 Including repositionable guideway:
This subclass is indented under subclass 354.1. Subject matter wherein the rail or track for the carriage* may be shifted or adjusted relative to the typewriter.

(1) Note. This construction enables an operator to clean, or align or adjust the parts of the typewriter.

355 Means for repositioning carriage or platen thereon:
This subclass is indented under subclass 283. Subject matter wherein the carriage* of the typewriter may be shifted or adjusted relative to the typewriter, or the platen* that is on the carriage may be adjusted relative to the carriage.

356 To nonprint position:
This subclass is indented under subclass 355. Subject matter wherein the shift or adjustment is from a position at which the platen* supported by the carriage* is in an operative (i.e., typing) position, to a position at which the platen, still supported by the carriage, is not in operative position.

(1) Note. This construction enables a carriage to be moved out of the way to facilitate cleaning, inspection, or adjustment of the interior of the typewriter.

357 To detach carriage:
This subclass is indented under subclass 355. Subject matter wherein the carriage* of the typewriter may be readily removed from, and the same or another carriage may be replaced in, the typewriter.

(1) Note. This construction enables a carriage to be removed to facilitate cleaning of the interior of the typewriter, or to replace the carriage with one of a different size.

358 To detach platen:
This subclass is indented under subclass 355. Subject matter wherein the platen* of the typewriter may be readily removed from, and the same or another platen may be replaced in, the carriage.

359 HAVING TYPEWRITER-CONTROLLED RECIPROCABLE ELECTROMAGNETIC DRIVE FOR TYPE-BAR ACTUATION IN SAME TYPEWRITER:
This subclass is indented under the class definition. Subject matter wherein the typewriter is provided with one or more magnetic* motors energized by electricity and movable to-and-fro in a straight line, the magnetic motor(s) being used for effecting the movement of any type-bar* member from a rest position to a print-point* position and being initiated by a typist who is typing on the typewriter that is being actuated.

SEE OR SEARCH THIS CLASS, SUBCLASS:
184, for a typewriter having electromagnetic actuators for plural functions*.

360 Including electromagnetic return of universal actuator:
This subclass is indented under subclass 359. Subject matter wherein said one magnetic* motor is used to retract any or all of the type-bar* members from a print-point* position to a rest position by way of one linkage that serves to move any of the members.

361 Including actuator to complete depression of selected key or key lever:
This subclass is indented under subclass 359. Subject matter wherein one or more of said magnetic* motors is energized when a selected key* element or a selected key lever is pressed by the typist, the energization of the magnetic motor causing the continuance of movement of the selected type-bar* member connected to said selected key or key lever has completed movement from a rest position to a print-point* position.

(1) Note. The term "selected" is discussed in the definitions of case-shift* and type-bar assemblage in the Glossary, section III, and the term "key lever" is defined in subclass 472 below.

(2) Note. The typewriter of this subclass may include one magnetic motor (i.e., "universal" actuator) that completes the

depression of any key or key lever, or may include a magnetic motor (i.e., an individual solenoid) for each of the keys or key levers.

362 Including universal actuator to actuate selected type-bar action:
This subclass is indented under subclass 359. Subject matter wherein the typewriter is provided with a plurality of type-bar* members and a plurality of linkages connected so as to join one linkage to one type-bar member, whereby pressing of a selected key* element will cause movement of a corresponding selected type-bar, and wherein one said magnetic* motor is provided, which magnetic motor causes movement of any selected type-bar member by way of a corresponding linkage.

363 And individual solenoids to connect the type-bar action to be actuated:
This subclass is indented under subclass 362. Subject matter wherein the typewriter is provided with magnetic* motors in addition to said one magnetic motor, which additional magnetic motors are used to join one linkage to a corresponding type-bar*, and wherein one additional magnetic motor corresponding to a selected type-bar is energized to join the selected linkage to the selected type-bar when said one magnetic motor is energized to cause movement of the selected type-bar.

364 Including individual solenoids to actuate the selected type-bar action:
This subclass is indented under subclass 359. Subject matter wherein the typewriter is provided with a plurality of type-bar* members and with a plurality of magnetic* motors, one such motor being effective to cause movement of one type-bar, and wherein the pressing of a selected key* element causes energization of a corresponding selected magnetic motor to cause movement of its connected type-bar.

365 HAVING ROTATED POWER DRIVE INTERMITTENTLY APPLIED FOR TYPE-BAR ACTUATION:
This subclass is indented under the class definition. Subject matter wherein mechanical energy is used to turn a shaft, said shaft being the origin of the force needed to perform any of the typing operations in a typewriter, and wherein said shaft is caused to be connected temporarily to a force-transmitting member only when an operation is to be performed, which operation includes the movement of a type-bar* (i.e., having a type-face* element thereon) from a rest position to a print-point* position for imprinting a character* on a record-medium*, or the movement of any element of a typewriter to perform a typing function*.

(1) Note. The mechanical energy is usually supplied by a electric motor that is powered to rotate continuously. The operation usually performed is the intermittent (i.e., on demand of the typist) actuation of a succession of type-bar members that are on a type-bar-segment*, but is not limited to that operation. A typist using such an "electric typewriter" needs to exert only as much force in depressing a key* element as is needed to connect the force-transmitting member to the shaft or to release the energy stored in a spring to actuate an operation such as type-bar actuation, carriage feed, carriage return, case-shift*, etc., the named operations being only exemplary. The power may be applied directly via a power roll of a linkage or may be applied indirectly via means to transfer the power to an intermediate selectively operated actuator (e.g., such as a spring) capable of storing the power.

SEE OR SEARCH THIS CLASS, SUBCLASS:
192, for a continuously rotated power drive intermittently applied for ribbon* feed or vibrator* actuation.

366 Including jam-release means:
This subclass is indented under subclass 365. Subject matter wherein a power-driven typewriter is provided with means for freeing a blockage caused by two movable parts of the typewriter tending to occupy the same space at the same time.

(1) Note. The most frequent occurrence of a jam results from two type-face* elements, each on its respective type-bar*, that arrive at the print-point* at the same time. Since a print-point accommodates

only one type-face element, a jam will occur if two such elements tend to occupy the print-point simultaneously. The mechanism of this subclass inhibits the actuation of one of the type-bars to prevent such an occurrence. In a typewriter that is not provided with such preventing means, or in a typewriter in which such a jam occurs despite said means, the mechanism effects the release of such a jammed condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:
425, for other jam-release mechanism.

367 Interposed components driven by filter shaft:
This subclass is indented under subclass 365. Subject matter wherein the typewriter is driven by a power drive that includes said shaft and a second shaft, which second shaft is rotated intermittently (i.e., when an operation is to be performed), and has radial projections thereon one of which projections strikes a member when the second shaft is rotated, which member is moved substantially tangentially of the second shaft when struck, and which member lies between the second shaft and a linkage that actuates the operation to be performed.

(1) Note. The operation that is performed is usually the selection of a type-face* to be impacted against the record-medium* and the actuation of the type-bar* that carries the selected type-face.

368 For repeat-type action:
This subclass is indented under subclass 365. Subject matter wherein the typewriter is driven by a power drive and is capable of an operation in which a typist presses one particular character*-key* element and the type-face* corresponding to said key will impact the record-medium* again and again to produce a succession of character symbols during the one pressing of the key element, all of which symbols are the same character.

SEE OR SEARCH THIS CLASS, SUBCLASS:
299, for a typewriter capable of forming a succession of character symbols, all of which symbols are the same character.

369 With prevention of repeat typing:
This subclass is indented under subclass 368. Subject matter wherein said typewriter is capable of said operation in which repeated typing of the same character* symbol occurs, or is capable of inhibiting the repeated typing operation.

(1) Note. A typewriter of this subclass includes a mechanism that is either (a) particularly designed to prevent repeat typing that might otherwise occur, or (b) capable of selectively inhibiting the repeated typing operation.

370 Via continuously rotated power roll:
This subclass is indented under subclass 365. Subject matter wherein said shaft is turned uninterruptedly (i.e., continuously rotated) and is fixed to a generally cylindrical member for similar continuous rotation of the member, which cylindrical member is positioned transversely of the type-bar* action mechanisms and the key* lever mechanisms of the typewriter, and is provided with surface modifications or characteristics intended to be engaged temporarily with a component that is connected to a type-bar action or to means for actuating a function* when a typist depresses a selected key element that initiates said one action or said one function*.

(1) Note. This subclass includes a typewriter having (a) a plurality of pulleys fixed on a continuously rotated drive shaft, each type-bar action being selectively connected with its respective pulley by a flexible band, or (b) a continuously rotated cam-shaped element selectively engageable by each key lever to limit the rate of depression of the key lever and to drive the selected key lever to its rest position subsequent to impact of the type-bar against the record-medium*.

(2) Note. A power roll of this subclass (370) differs from a drive shaft of subclass 365 in that a drive shaft is merely a continuously rotated shaft, whereas a power roll is located in the typewriter in a particular

transverse relationship, has a surface that is particularly modified to engage a selected component for movement of the component, and cooperates with the selected component under control of the typist by way of key lever elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

186, for a continuously rotated power roll selectively connected to plural functions.

371 And oscillatable cam:

This subclass is indented under subclass 370. Subject matter wherein said continuously rotated cylindrical member intermittently drives a component, which component has a cam surface and pivots to-and-fro in an arc to move a lever on which the component is mounted.

(1) Note. A "cam surface" is defined as the edge periphery of a disc that oscillates or rotates about an axis, the radial distance from the axis to the periphery varying around the periphery. The cam is mounted on a lever that is pivotally mounted and is connected to the typebar* action linkage. When the cam is temporarily connected to the cylindrical member, the cam oscillates about its axis, thereby pushing the lever through the pivot axis of the cam. The resulting oscillation of the lever actuates the typebar linkage.

372 And rotatable cam (e.g., single-lobe cam):

This subclass is indented under subclass 370. Subject matter wherein said continuously rotated cylindrical member intermittently drives a component, which component has a cam surface and turns around an axis to move a lever on which the component is mounted.

(1) Note. A "cam surface" is defined as the edge periphery of a disc that oscillates or rotates about an axis, the radial distance from the axis to the periphery varying around the periphery. The cam is mounted on a lever that is pivotally mounted and is connected to the typebar* action linkage. When the cam is temporarily connected to the cylindrical member, the cam rotates about its axis, thereby pushing the lever through the pivot axis of the cam. The resulting oscillation of the lever actuates the typebar linkage.

373 Including double-lobe cam:

This subclass is indented under subclass 372. Subject matter wherein said cam surface is so configured that it will effect two complete oscillatory movements of the lever on which it is mounted during each rotation (i.e., through 360°) of said component, a complete oscillatory movement comprising a movement away from and a movement toward a rest or normal position.

374 And friction leg (e.g., other than by cam):

This subclass is indented under subclass 370. Subject matter wherein said continuously rotated cylindrical member intermittently drives a component by nonslidable contact between a surface of the member and a surface of the component.

375 Snatch roll:

This subclass is indented under subclass 370. Subject matter wherein the surface characteristics of said continuously rotated cylindrical member include toothlike projections extending circumferentially around the member, each projection being substantially parallel to the axis of rotation of the member to form a longitudinally corrugated surface on the member, and wherein said component is a pawl* or a star wheel (i.e., a rotatable element having projections or teeth extending radially), which component is temporarily engaged with said surface when an actuation of the typewriter is desired.

375.1 Including plural coaxial snatch discs:

This subclass is indented under subclass 375. Subject matter wherein said continuously rotated cylindrical member is formed as a composite assemblage of elements rotating on the same axis, each of which elements extends in an axial direction to only part of the axial length of said member, but is otherwise similar in configuration to said member as to its toothlike projections.

(1) Note. The elements may be arranged so that the teeth of the side by side discs

form a composite projection that is parallel to the axis, or may be arranged with the side by side discs rotationally displaced so that the teeth form a composite projection that is helical about the axis.

375.2 With control of impact force:
This subclass is indented under subclass 375. Subject matter wherein the cylindrical member and the component cause a type-bar* together with its type-face* element to be impressed against a record-medium* with a particular impetus, and wherein the cooperation between the cylindrical member and the component, or movement of the component itself, may be regulated as to its impression impetus.

SEE OR SEARCH THIS CLASS, SUBCLASS:
376, for impact control in a typewriter having a power roll.

375.3 With electromagnetic control of pawl:
This subclass is indented under subclass 375. Subject matter wherein said component is a pawl* that engages a notch between the projection of said cylindrical member when an actuation of the typewriter is desired, the pawl being moved into engagement with the notch by the energization of an electromagnetically driven element.

375.4 And star wheel:
This subclass is indented under subclass 375. Subject matter wherein said component is a rotatable element having projections or teeth extending radially from the axis of rotation of the element, and wherein a projection or tooth of said element engages a notch between the projections of said cylindrical member when an actuation of the typewriter is desired.

376 With control of impact force:
This subclass is indented under subclass 370. Subject matter wherein the member and the component cause a type-bar* together with its type-face* element to be impressed against a record-medium* with a particular impetus, and wherein the cooperation between the cylindrical member and the component, or the movement of the component itself, may be regulated as to its impression impetus.

SEE OR SEARCH THIS CLASS, SUBCLASS:
375.2, for impact control in a typewriter having a snatch roll.

377 Via limited-rotation clutch:
This subclass is indented under subclass 365. Subject matter wherein said continuously rotated shaft is caused to be connected intermittently and temporarily to said force-transmitting member by way of a clutch that is engaged for only a predetermined number of degrees of rotation and disengaged after the predetermined number of degrees of rotation has been transmitted.

(1) Note. A clutch is a mechanism that includes a first element rotatable with a first shaft and a second element rotatable to drive a second shaft. The elements and shafts are rotatable about a common axis, and at least one of the elements is movable relative to the other element into nonslidable engagement therewith. When the elements are in engagement the rotation of the first shaft will be transmitted to the second shaft and when the elements are not in engagement the second shaft will not be rotated by the first shaft. The rotation of the continuously rotating shaft causes rotation of the first shaft, which causes rotation of the second shaft by way of the intermittently engaged elements, and the force-transmitting member is connected to the second shaft to be intermittently driven thereby.

378 Plural cams clutched to drive shaft:
This subclass is indented under subclass 377. Subject matter wherein the typewriter is provided with a plurality of said second elements, each of which second elements includes a cam surface that is connected by way of a cam-surface follower to a force-transmitting member for a selected type-bar* action.

379 Via spring drive (e.g., spring-driven snatch roll):
This subclass is indented under subclass 365. Subject matter wherein said shaft is caused to be connected intermittently and temporarily to said force-transmitting member by way of at

least one resilient or yieldable component, which component is stressed by rotation of the shaft, and the stress in the component is released intermittently or selectively to actuate a selected type-bar* action.

380 Including Individual spring for each type-bar action:
This subclass is indented under subclass 379. Subject matter wherein the typewriter is provided with a plurality of said components corresponding to the number of type-bar* members and the number of mechanisms that actuate the type-bars, one of said components being connected to each one of said type-bars.

381 Including reciprocable common actuator:
This subclass is indented under subclass 379. Subject matter wherein one force-transmitting member is capable of being connected to any of a plurality of type-bar* action mechanisms as selected by a typist, and wherein said force-transmitting member moves to-and-fro to make such connection.

382 Via reciprocating common actuator:
This subclass is indented under subclass 365. Subject matter wherein said shaft is caused to be connected intermittently and temporarily to said force-transmitting member by way of a component that moves to-an-fro, and wherein a plurality of force-transmitting members are provided, each member effecting movement of one of a plurality of type-bar* action mechanisms as selected by a typist.

383 TYPE-BAR-ACTION MECHANISM OR TYPE-FACE ON TYPE-BAR OR TYPE-FACE INKER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to (a) means for effecting movement of a type-bar* member from its rest (i.e., normal or base) position to its print-point* (i.e., type-face* impacting) position or to the close vicinity of the print-point position, or (b) means for returning a type-bar from its print-point position to its rest position, or (c) structure for enabling such movement or for supporting a type-bar during such movement, or (d) a type-face mounted on or supported by a type-bar, or (e) means for applying ink* to a type-face before the type face is impacted against the record-medium*, or (f) structure that is used in conjunction with a type-bar.

(1) Note. Although it is apparent that the movement of a type-bar is ordinarily initiated by the pressing of a key* element by a typist, none of the key, or keyboard* or key-lever mechanisms is included in the structure of this or indented subclasses. For such key structure, see subclass 472.

(2) Note. This subclass is for a rear-strike typewriter wherein significance is attributed to a typewriter in which the type-member* elements impact against the platen* (and thereby impact against a record-medium that is backed by the platen) at a print-point* located adjacent to a rearmost part of the platen. This subclass is also for a front-strike typewriter having structure not provided for in the following subclasses wherein significance is attributed to a typewriter in which the type-member elements impact against the platen (and thereby impact against a record-medium that is backed by the platen) at a print-point located adjacent to a foremost part of the platen.

384 Spring drive for type-bar action:
This subclass is indented under subclass 383. Subject matter wherein the movement of a type-bar* from its rest position to its print-point* position is caused by the manual depression of a key* element by a typist by way of a resilient or yieldable component that is stressed and the stress is released intermittently or selectively to effect said movement.

385 With added-motion mechanism for type-bar near print-point:
This subclass is indented under subclass 383. Subject matter wherein a typewriter is provided with first means for effecting movement of a type-bar* from its rest position to a position close to (i.e., the vicinity of) the print-point* of the typewriter, and is also provided with additional means for effecting further movement of the type-bar from the close position to a print-point position.

386 Including toggle-linkage:
This subclass is indented under subclass 385. Subject matter wherein said additional means includes a toggle-linkage* in the actuating mechanism at effects said further movement.

387 Including momentum accumulator:
This subclass is indented under subclass 385. Subject matter wherein said additional means includes a mass or weight, the inertia of said mass providing the force that effects said further movement.

388 Including hammer, roller, or presser mechanism:
This subclass is indented under subclass 385. Subject matter wherein said additional means includes a striker element that imparts a sudden impact, or includes a cylindrical element that rolls against said type-bar*, or includes a forcer element that urges the type-bar, any of which elements is not directly connected to the type-bar, but which effects said further movement of the type-bar.

(1) Note. This subclass includes a typewriter wherein the first means of subclass 385 effects rectilinear movement of a type-bar from its rest position to a position close to the print-point* of the typewriter.

388.1 Type-bar pivotable to vicinity of print-point:
This subclass is indented under subclass 388. Subject matter wherein the first means (i.e., of subclass 385) effects arcuate movement of a type-bar* from its rest position to a position close to the print-point* of the typewriter.

(1) Note. This subclass includes a top-strike and bottom-strike as well as front-strike typewriters.

389 With power assist for mechanism:
This subclass is indented under subclass 385. Subject matter wherein said additional means effects further movement of the type-bar* with the help of electrical or electromagnetic energy applied to the type-bar-actuator means.

390 With end-thrust mechanism for type-bar:
This subclass is indented under subclass 383. Subject matter wherein a type-bar* of a typewriter is an elongated member having a type-face* (or a type-die*) element thereon located at one end of said member, said type-face being positioned so that its surface is approximately perpendicular to the elongated length of the member, and wherein the movement of said type-bar is in the direction of its length as it moves from a rest position to a print-point* position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
459, for a guide for a thrusted type-bar.

391 Type-bar slidable on flat support:
This subclass is indented under subclass 390. Subject matter wherein said type-bar* is carried by a planar member and is moved relative to the member while in contact with the surface of the member.

391.1 Driven by gear means:
This subclass is indented under subclass 391. Subject matter wherein the movement of the type-bar* is effected by way of at least two toothed members, the teeth of which intermesh so that as one member is moved, another member is also moved.

391.2 Driven by cam means:
This subclass is indented under subclass 391. Subject matter wherein the movement of the type-bar* is effected by way of a member having a cam surface connected to a cam-surface follower.

(1) Note. A “cam surface” is defined as the edge periphery of a disc that rotates or oscillates about an axis, the radial distance of the axis to the periphery varying around the periphery. As the disc rotates or oscillates, the distance of a follower that is in contact with the periphery will increase and decrease relative to the axis of the disc, thus the rotation or oscillation of the disc will effect substantially radial movement of the follower.

391.3 Driven by toggle-linkage:
This subclass is indented under subclass 391. Subject matter wherein the movement of the type-bar* is effected by way of a toggle-linkage* connected to the type-bar.

391.4 With power assist for mechanism:
This subclass is indented under subclass 391. Subject matter wherein the movement of the type-bar* is effected with the help of electrical or electromagnetic energy applied to the type-bar-moving means.

392 Including momentum accumulator:
This subclass is indented under subclass 390. Subject matter wherein said movement of said type-bar* is helped by a mass or weight, the inertia of said mass providing the force that effects said movement.

393 For top-strike or bottom-strike typewriter:
This subclass is indented under subclass 390. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against the platen* (and thereby impact against a record-medium* that is backed by the platen) at a print-point* located adjacent to an uppermost part of the platen or at a print-point located adjacent to an underneath part of the platen.

394 With type-bar pivot traveling during typing movement of type-bar:
This subclass is indented under subclass 383. Subject matter wherein a type-bar* of a typewriter is mounted for oscillatory or arcuate movement about an axis while the type-bar moves from its rest position to its print-point* position, and wherein said axis also move from a first position to a second position while the type-bar moves.

(1) Note. The structure defined is directed to what is effectively a "floating" type-bar. The pivot end of the type-bar pivots about a first axis, and the first axis pivots about a second axis, thus imparting a compound movement to the type-face* that is affixed to the other end of the type-bar.

395 Type-bar pivot on longitudinally movable carrier in top-strike typewriter:
This subclass is indented under subclass 394. Subject matter wherein the type-bar* is mounted for oscillatory or arcuate movement about an axis, and the axis is in a support that moves rectilinearly to-and-fro relative to the print-point* position, and wherein the type-bar is in a top-strike typewriter.

(1) Note. The term "top-strike typewriter" is defined in the definition of 415 below.

(2) Note. Many of the typewriters in this subclass also have ink-pad means to apply ink* to the type-face* while the type-bar is in a rest position.

396 With ink pad on type-bar rest:
This subclass is indented under subclass 394. Subject matter wherein said type-bar* or the type-face* element carried thereby is supported while in its rest position by an element, which element includes a block or mass of porous or absorbent material that is impregnated with ink* whereby a type-face that is resting on the element will be coated with ink in preparation for the next impact of the type-face against a record-medium*.

(1) Note. This subclass also includes an ink pad in a top-strike or a bottom-strike type-writer.

397 With disconnection of type-bar action during movement thereof:
This subclass is indented under subclass 383. Subject matter wherein a type-bar* of a typewriter is caused to move from its rest position to its print-point* position by drive linkage that associates or joins a key*lever to the type-bar so that movement of the key lever transmits movement to the type-bar, and wherein the drive linkage is temporarily disassociated or disjoined while the type-bar is moving to a print-point position so that the type-bar may continue its movement without further typing movement of the key lever.

(1) Note. The structure defined permits the key lever to stop its movement or to return to its rest position while the type-

bar is still moving to its print-point position.

(2) Note. The term "key lever" is defined in the definition of subclass 472 below.

398 With accelerated (e.g., motion amplifying) type-bar action:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed mechanism that effects an increase in the rate of speed of a type-bar* as it moves from its rest position to its print-point* position, which mechanism includes a link or lever that pivots about a fulcrum that shifts relative to the link or lever as the type-bar moves.

(1) Note. It is, of course, inherent in any member that moves from a rest position to a second position that acceleration from zero velocity to a maximum velocity must occur during such movement, but most disclosures of type-bar-action mechanism are silent as to acceleration. In this and indented subclasses, the claimed disclosure of the patents therein emphasize the structure of the action that produces a type-bar movement which accelerates during all or part of its motion from its rest position to its print-point position.

399 By rolling contact between links:
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes one lever or link that pivots with respect to an associated lever or link on a fulcrum that rolls or turns at the point of association.

399.1 By key lever rolling on fulcrum:
This subclass is indented under subclass 399. Subject matter wherein the lever or link that pivots with respect to its associated lever or link is a key* lever.

(1) Note. The term "key lever" is defined in the definition of subclass 472.

(2) Note. Included herein are mechanisms in which a key lever rolls on a frame or a fulcrum plate or a sublever, or in which a sublever is pivoted on a key lever.

400 By cam-engaging link:
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes a component that rotates or oscillates about an axis, which component has an edge periphery that varies in radius around the periphery and which component is associated with a lever or link to provide the means for shifting the fulcrum of the lever.

401 By breaking and straightening toggle-linkages:
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes at least two toggle-linkage* assemblages associated with a lever for moving the type-bar*, one of which toggle-linkages act to move the lever when the toggle-linkage is straightened and the other of which toggle-linkages act to move the lever when the toggle-linkage is broken.

(1) Note. The terms "broken" and "straightened" as applied to a toggle-linkage are discussed in the Glossary, under the definition of toggle-linkage.

402 By breaking toggle-linkage (e.g., to pull type-bar to print-point):
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes a toggle-linkage* assemblage associated with a lever for moving the type-bar*, which toggle-linkage acts to move the lever when the toggle-linkage is broken.

(1) Note. The term "broken" as applied to a toggle-linkage is discussed in the Glossary, under the definition of toggle-linkage. In this subclass the type-bar is pulled to the print-point* as the toggle-linkage is broken.

403 By straightening toggle-linkage (e.g., to push type-bar to print-point):
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes a toggle-linkage* assemblage associated with a lever for moving the type-bar*, which toggle-linkage acts to move the lever when the toggle-linkage is straightened.

(1) Note. The term "straightened" as applied to a toggle-linkage is discussed in the Glossary, under the definition of toggle-linkage. In this subclass the type-bar is pushed to the print-point* as the toggle linkage is straightened.

404 Including adjustment of toggle-linkage anchor position:
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes a toggle-linkage* assemblage associated with a lever for moving the type-bar*, which toggle-linkage includes one link pivoted to the typewriter frame at a location that may be varied relative to the frame, whereby the effect of the toggle-linkage on the lever may be varied.

405 By type-bar connecting link:
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes a lever or bell crank or link that associates the type-bar* member with the key* lever for moving the type-bar with an increase in the rate of speed of the type-bar.

405.1 Including gear connection:
This subclass is indented under subclass 405. Subject matter wherein the lever or bell crank or link is provided with a toothed portion moving in the arc of a circle, the teeth meshing with a toothed portion on the type-bar* member to effect movement of the type-bar when the key* lever moves the lever, bell crank, or link of the mechanism.

406 By pin and slot connection:
This subclass is indented under subclass 398. Subject matter wherein the mechanism includes a lever or link having a narrow, elongated aperture therein associated with a lever or link having a short rod extending through the aperture, the aperture and rod providing the means for shifting the fulcrum.

407 Including type-bar starter means:
This subclass is indented under subclass 398. Subject matter wherein significance is attributed to that portion of the type-bar* moving mechanism that initiates movement of the type-bar away from the rest position.

408 For bottom-strike typewriter:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to a typewriter in which the type-face* elements impact against the platen* (and thereby impact against a record-medium* that is backed by the platen) at a print-point* located adjacent to an underneath part of the platen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32, for a type-bar* action in a flat-platen typewriter.

409 Including simultaneous actuation of plural type-bars for simultaneous imprinting:
This subclass is indented under subclass 408. Subject matter wherein two or more type-bar* members, each type-bar carrying at least one type-face* element thereon, are each moved from a respective rest position to a respective print-point* position to impact two or more type-faces against the record-medium* at the same time.

410 With pivotally mounted platen carrier (e.g., for access, etc.):
This subclass is indented under subclass 408. Subject matter wherein the typewriter is provided with a platen* for backing the record-medium*, which platen is supported for movement of the platen relative to the typewriter during typing operation, and wherein the platen support also enables movement of the platen out of typing position being in the arc of a circle.

(1) Note. The movement out of typing position enables the platen to be taken out of the way so that access to the interior of the typewriter is possible.

411 Type-bar actuated by rack and gear:
This subclass is indented under subclass 408. Subject matter wherein type-face* elements are carried by respective type-bar* members and wherein each type-bar is moved from a rest position to a print-point* position by way of a reciprocable bar having teeth along one edge thereof and a rotatable disc having teeth on the periphery thereof, the teeth of the disc meshing with the teeth of the bar so that movement of

one toothed element causes movement of the other toothed element which causes movement of the type-bar.

412 Including type-bar mounting arrangement:
This subclass is indented under subclass 408. Subject matter wherein type-face* elements are carried by respective type-bar* members, and wherein significance is attributed to structure for supporting the type-bars for movement from a rest position to a print-point* position.

(1) Note. The structure includes a mounting having discontinuous arrangement of type-bars at front and rear of platen*, a mounting for type-bars having an elongated pivot portion transverse to the platen axis, and a mounting for type-bars pivoted for lateral movement.

413 With type-face inker (e.g., ink-pad rest):
This subclass is indented under subclass 408. Subject matter wherein the typewriter is provided with means to apply ink* to the type-face* element.

(1) Note. The inker is usually in the form of an ink pad having ink thereon, the ink pad serving also as a rest to support the type-bar* member with the type-face in contact with the ink pad, and may have means for rotating the type-bar as it moves from the print-point* position (with the type-face upwardly oriented) to the rest position (with the type-face downwardly oriented).

414 Including key or key-lever arrangement:
This subclass is indented under subclass 408. Subject matter wherein significance is attributed to the key* elements or the key-lever bars or to structure that support the key elements of a bottom-strike typewriter.

(1) Note. The term "key lever" is defined in the definition of subclass 472 below.

(2) Note. Included in this subclass is key-lever structure for moving an intermediate horizontal linkage transverse to the key levers and type-bar* members, structure including a vertically movable key lever, and a key that moves a horizontally movable draw bar or link instead of a key lever.

SEE OR SEARCH THIS CLASS, SUBCLASS:
472+, for a key-board* or keys of a standard typewriter.

415 For top-strike typewriter:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to a typewriter in which type-face* elements impact against the platen* (and thereby impact against a record-medium* that is backed by the platen) at a print-point* located adjacent to an uppermost part of the platen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
33, for a type-bar* action in a flat-platen typewriter.

416 Including type-bars pivoted on both sides of, or above and across, platen axis:
This subclass is indented under subclass 415. Subject matter wherein the type-bar* members carrying the type-face* elements of a type-set-assemblage* are either (a) disposed into two groups, one group of type-bars being oscillated about an axis (or axes) located in front of the platen* and the other group of type-bars being oscillated about an axis (or axes) located behind the platen, or (b) oscillated on one or more type-bar axes, the axis of oscillation of each type-bar being disposed over the platen and transverse to the length dimension of the platen.

(1) Note. The disposition of the type-bars discussed in (a) of the definition may be above and in front of, or above and behind, the platen. The disposition of the type-bars discussed in (b) may be in two groups on axes above and across the platen axis.

417 With type-face inker (e.g., ink pad, roller, etc.):
This subclass is indented under subclass 415. Subject matter wherein the typewriter is provided with means to apply ink* to the type-face* element.

(1) Note. The inker is usually in the form of an ink-pad element or an ink-roller element impregnated with ink. Contact of the type-face with the inking element applies a coating of ink to the type-face for subsequent application to the record-medium* as the type-face is impressed against the record-medium.

418 Type-bar pivoted by gear connection:
This subclass is indented under subclass 415. Subject matter wherein the type-bar* member is oscillated from a rest position to a print-point* position, the oscillation being effected by a toothed portion on the type-bar, the teeth of the type-bar being intermeshed with teeth on a toothed component that is caused to rotate or oscillate.

419 Type-member or type-bar pivoted and rotatable (e.g., for selection of type-face):
This subclass is indented under subclass 415. Subject matter wherein a plurality of type-face* elements are carried on a type-member* or carried by a type-bar*, which type-bar is an elongated member that is oscillatable from a rest position to a print-point* position about a pivot, and wherein either the type-member or the type-bar may be turned or oscillated about an axis that is substantially perpendicular to the pivot axis of the type-bar, whereby one of the plurality of type-faces on any type-member or type-bar may be positioned or oriented to be impressed against the record-medium* when the type-bar is oscillated to the print-point.

(1) Note. The structure provides for selection of one of a plurality of type-faces from the limited number of type-faces available on one type-member. For a typewriter wherein a type-head* includes a plurality of type-faces comprising a type-set-assemblage*, see subclass 139 above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
139+, and see (1) Note above.

420 Type-bar pivoted by push link:
This subclass is indented under subclass 415. Subject matter wherein the type-bar* member is oscillated from a rest position to a print-point* position, the oscillation being effected by a component that is connected to the type-bar and is moved in a direction along its length dimension with force that tends to compress the length dimension.

421 Type-bar pivoted by cam:
This subclass is indented under subclass 415. Subject matter wherein the type-bar* member is oscillated from a rest position to a print-point* position, the oscillation being effected by a component that rotates or oscillates about an axis, which component has an edge periphery that varies in radius about the periphery and which component is associated with the type-bar to cause the type-bar to move toward the print-point as the component oscillates or rotates.

422 Type-bar action:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to mechanism for effecting the movement of a type-bar* from its rest (i.e., normal or base) position to its print-point* (i.e., type-face* impacting) position.

423 Including selectively disengageable type-bar action to render action inoperable:
This subclass is indented under subclass 422. Subject matter wherein said mechanism includes links or components normally connected together for enabling the mechanism to effect movement of a type-bar* from its rest position to its print-point* position, and wherein one or more of the links or components may be temporarily disconnected at the will of the typist, whereby the mechanism is made ineffective.

(1) Note. The purpose of this mechanism is to enable the typist to prevent unauthorized use of the typewriter while the typist is away from the typewriter.

424 With type-face pivoted on type-bar for rolling contact with platen:
This subclass is indented under subclass 422. Subject matter wherein the type-bar* member supports a type-face* element for arcuate movement relative to the type-bar, the movement being on an axis that is parallel to the axis of the platen* to which the type-bar is moved for impression of the type-face at the print-

point* and wherein the type-face rolls against the platen by moving the type-face-element axis around the platen axis when the type-face is adjacent to the print- point.

425 Including jam-release means:
This subclass is indented under subclass 422. Subject matter wherein a typewriter having type-bar* members that are movable from a rest position to a print-point* position is provided with means for freeing a blockage caused by two type-bars tending to occupy the same space at the same time.

(1) Note. The tendency for jamming is enhanced because all of the type-bars impress against the same print-point. Rapid typing will increase the probability that a previously impressed type-face* element will not have cleared the print-point before the succeeding type-face reaches the print-point, or the possibility that two type-face elements reach the print-point simultaneously. The resulting jammed condition is released by the means of this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
366, for other jam-release means.

426 Including type-bar return before release of key lever:
This subclass is indented under subclass 422. Subject matter wherein the type-bar* is moved from a rest position to a print-point* position and from a print-point position back to a rest position, and at least the movement from rest to a print-point is accomplished as a result of a typist pressing a key* element on the keyboard* of the typewriter, and wherein the movement of the type-bar from a print-point back to a rest position may be accomplished while the key element is still pressed by the typist.

427 Including yieldable link in type-bar action:
This subclass is indented under subclass 422. Subject matter wherein said mechanism includes a resilient component as part of the drive train that causes the movement of the type-bar* member from a rest position to a print-point* position.

(1) Note. In this subclass the yieldable link is part of the drive train. This yieldable link is different from the return spring of subclass 436 below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
436+, and see (1) Note above.

428 Including means to limit type-bar movement:
This subclass is indented under subclass 422. Subject matter wherein significance is attributed to means for regulating the movement of the type-bar* member in its movement from a rest position to a print-point* position or its movement from a print-point position to a rest position, said means being part of said mechanism for effecting said movement.

(1) Note. The means is within the mechanism itself rather than being the platen* at the print-point. The means may include a toggle-linkage*, or may control the impact force, or the velocity of the type-bar.

429 Type-bar pushed or pulled by hooklike cam:
This subclass is indented under subclass 422. Subject matter wherein the type-bar* movement is effected by a mechanism that includes an elongated component that is pivoted adjacent to one end thereof, said one end being configured as a curved extension that extends into a concavity of a cooperating member that is included in said mechanism, the curved extension also having a side edge periphery that varies in radius around the periphery whereby as the component pivots its periphery extending into the concavity will cause movement of the cooperating member.

430 Type-bar pulled to print-point:
This subclass is indented under subclass 422. Subject matter wherein the type-bar* member is moved from a rest position to a print-point* position by a component that is part of the type-bar-action mechanism, which component is itself under tension as the type-bar is moved to the print-point.

430.1 By cam means (e.g., slotted cam, helix, etc.):
This subclass is indented under subclass 430. Subject matter wherein said component oscillates or rotates about an axis and is provided with a periphery that engages a cooperating element and causes movement of the cooperating element (and thus causes movement of the type-bar*-action mechanism) as the component periphery is caused to be rotated or oscillated.

430.2 By toggle-linkage:
This subclass is indented under subclass 430. Subject matter wherein said tension component is part of a toggle-linkage* assemblage.

430.3 With movable type-bar-segment:
This subclass is indented under subclass 430. Subject matter wherein the type-bar* members of the typewriter are mounted on a type-bar-segment*, which type-bar-segment is mounted so as to be movable.

(1) Note. The movement of the type-bar-segment is often for the purpose of enabling case-shift* movement and the type-bar-action mechanism is modified to enable such movement.

431 Type-bar moved to print-point by gear drive:
This subclass is indented under subclass 422. Subject matter wherein said mechanism includes at least two components having teeth or notches thereon, the teeth of one component intermeshing with the teeth of the other component whereby the movement of one component is transmitted to the movement of the other component, and the components being associated in the type-bar*-action mechanism.

432 Type-bar moved to print-point by cam means:
This subclass is indented under subclass 422. Subject matter wherein said mechanism includes a component that is rotated or oscillated about an axis, which component has an edge periphery that varies in radius about the periphery, and which periphery contacts an element in the type-bar*-action mechanism that is moved by the rotation or oscillation of the component.

433 Type-bar moved to print-point by toggle-linkage:
This subclass is indented under subclass 422. Subject matter wherein said mechanism includes a toggle-linkage* assemblage associated in the type-bar*-action mechanism.

434 Including connecting link or joint:
This subclass is indented under subclass 422. Subject matter wherein significance is attributed to one or more of the components in the structure of said mechanism that effects the movement of a type-bar* from its rest position to its print-point* position, or wherein significance is attributed to structure that joins said components to enable movement to occur between the components.

434.1 Adjustable (e.g., in length, etc.):
This subclass is indented under subclass 434. Subject matter wherein significance is attributed to structure of said component for varying the component as to its position, dimensions, or effectiveness in the mechanism.

434.2 Flexible (e.g., spring, strap, etc.):
This subclass is indented under subclass 434. Subject matter wherein significance is attributed to structure of said component that is bendable or yieldable or pliant.

434.3 Including connecting element (e.g., joint, etc.):
This subclass is indented under subclass 434. Subject matter wherein significance is attributed to structure that joins said components to enable movement to occur between the components.

435 Type-bar rebound preventer (e.g., via latch, brake, linkage, etc.):
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to means for retarding movement of a type-bar* that is returning from its print-point* position to its rest position, whereby the type-bar will not spring back from its rest position.

(1) Note. The intent of rebound control is to prevent or minimize a second movement from its rest position to its print-point position so as to prevent multiple images. Rebound control includes struc-

ture such as a latch, a brake, and an arrangement of linkages similar to a toggle-linkage* assemblage, which structure tends to prevent rebound in spite of the force with which the type-bar is returned to its rest position.

436 Type-bar return spring connected to type-bar action linkage:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to a resilient or yieldable means for effecting the movement of a type-bar* from its print-point* position to its rest position, said means being part of or joined to means for effecting movement of the type-bar from its rest position to its print-point position.

437 For impact control:
This subclass is indented under subclass 436. Subject matter wherein a type-bar* member is moved from its rest position to its print-point* position to impress a type-face* by force against a record-medium* backed by a platen* at the print-point, and wherein significance is attributed to regulating or governing said force by said resilient or yieldable means.

438 With adjustment means (e.g., for "touch" control, etc.):
This subclass is indented under subclass 436. Subject matter wherein a type-bar* member is moved from its rest position to its print-point* position, the movement being caused by the pressing of a key* element on a key-board* by a typist exerting force on the key, and wherein significance is attributed to changing the amount of force exerted by the typist for pressing the key element.

(1) Note. The "touch" control of this subclass is intended to modify the typewriter to the needs of various typists who might use the same typewriter. Some typists use a light or lesser touch, striking the keys with little force. The same typewriter, if subsequently used by a typist with a heavy touch who strikes the keys with great force, might have its platen* damaged. The touch control tends to prevent this.

438.1 Including an indicator:
This subclass is indented under subclass 438. Subject matter wherein the typewriter that is provided with said force-changing attribute is also provided with a device for showing the typist an indication of how much force is required to press the key* elements of the typewriter.

439 Attached to type-bar or universal-bar:
This subclass is indented under subclass 436. Subject matter wherein said resilient or yieldable means is fastened to the type-bar* itself or to the universal-bar* that causes movement of the type-bar.

440 Attached to key lever (e.g., tension spring):
This subclass is indented under subclass 436. Subject matter wherein said resilient or yieldable means is fastened to the key* lever of the typewriter.

(1) Note. The term "key lever" is defined in the definition of subclass 472 below.

(2) Note. The typewriter of this subclass is usually provided with a tension spring (i.e., a spring which exerts force when its ends are pulled apart).

440.1 Compression spring:
This subclass is indented under subclass 440. Subject matter wherein the resilient or yieldable means is a component that exerts a returning force when the opposite ends thereof are pushed together.

440.2 Cantilever spring (e.g., torsion, hairpin, etc.):
This subclass is indented under subclass 440. Subject matter wherein the resilient or yieldable means is an elongated component having two ends, one of the ends being fixed to the frame of the typewriter and the other of the ends being movable to exert a returning force.

(1) Note. The spring may be configured as a leaf spring or a torsion spring or a hairpin spring, these being only exemplary of the configurations used.

441 Type-bar pivot support:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to structure that holds a fulcrum or axis, on which fulcrum or axis a type-bar* oscillates during its movement from its rest position to print-point* position and its return from its print-point position to its rest position.

442 For plural groups of type-bars:
This subclass is indented under subclass 441. Subject matter wherein the type-bar* members of a typewriter are arranged in two or more sets, each set including only part of the full type-set-assemblage* of the typewriter, and each set of type-bars being supported on a separate pivot support that is common to all the type-bars of that set.

442.1 Having type-bars disposed on plural ring supports:
This subclass is indented under subclass 442. Subject matter wherein each set of type-bar* members is mounted in a pivot support that has a circular or annular configuration.

442.2 Including type-bars pivoted on vertical pivot(s) (e.g., moved in horizontal plane):
This subclass is indented under subclass 442. Subject matter wherein each of the type-bar* members is mounted for oscillation about an axis that is disposed vertically so that the oscillation occurs horizontally.

443 Ring support:
This subclass is indented under subclass 441. Subject matter wherein each type-bar* member is mounted for oscillation in a pivot support that has a circular or annular configuration.

(1) Note. Usually this form of support (i.e., ring support) is used in a top-strike typewriter or a bottom-strike typewriter.

444 Type basket laterally movable relative to platen and key-board:
This subclass is indented under subclass 441. Subject matter wherein the type-bar* members are arranged in a unitary support, which support is mounted so as to be moved with respect to the platen* and to the key-board* of the typewriter in a plane that is parallel to a horizontal plane tangent to the platen.

445 Type-bar-segment (e.g., wire journal):
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to said structure being configured as a type-bar-segment.

(1) Note. In the typewriter of this subclass a wire or thin elongated member is usually the common bearing or journal for all the type-bar* members.

445.1 With guide for movement of segment:
This subclass is indented under subclass 445. Subject matter wherein the typewriter is provided with means associated with the type-bar-segment* that constrains the type-bar-segment to motion along a predetermined path.

(1) Note. The guide means of this subclass is usually for constraining case-shift* movement of the type-bar-segment.

445.2 Including hanger for individual type-bar:
This subclass is indented under subclass 445. Subject matter wherein the type-bar-segment* is provided with a plurality of components, each component being affixed to or dependent from the type-bar-segment, and each component serving to support one type-bar* member for oscillation of the type-bar.

445.3 And bearing for type-bar:
This subclass is indented under subclass 445.2. Subject matter wherein significance is attributed to a part in or on said component in which a pivot or journal or gudgeon that is connected to the type-bar* member turns or oscillates relative to said component.

(1) Note. The bearing of this subclass may be a ball bearing, a roller bearing, a conical bearing, etc., these forms of bearing being only exemplary of those found herein.

445.4 Interchangeable (i.e., easily removable) segment:
This subclass is indented under subclass 445. Subject matter wherein significance is attributed to a type-bar segment* that may be taken out of the typewriter without the use of special tools to be replaced by the same or a different type-bar-segment.

445.5 With type-bar anvil:
This subclass is indented under subclass 445. Subject matter wherein the type-bar-segment* is provided with a component located adjacent to the position at which the type-bar* member stops when the type-face* element has reached the print-point* position, which component acts to stop the type-bar at the print-point.

(1) Note. In most typewriters the type-bar has some momentum when its type-face is at the print-point. To prevent damage to the platen* by repeated impacts of the type-face against the platen. The anvil of this subclass is provided to absorb the momentum of the type-bar rather than the platen absorbing the momentum of the type-bar.

446 Interconnected (e.g., nested) support bearings:
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to a part in or on said structure, in which part of a pivot or journal or gudgeon that is connected to the type-bar* member turns or oscillates relative to said structure, and which part of one type-bar is held partly within the confines of a similar part of an adjacent type-bar.

447 Ball-and-socket bearing for type-bar (e.g., universal joint):
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to the form of bearing that enables the type-bar* member to oscillate from its rest position to its print-point* position and return, the bearing including a spheroidal part that is partially enclosed in a concavity that at least partially surrounds the spheroidal part.

448 Roller bearing or ball bearing for type-bar:
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to the form of bearing that enables a type-bar* member to oscillate from its rest position to its print-point position and return to its rest position, the bearing being a roller bearing or a ball bearing.

(1) Note. A form of bearing for this subclass includes two annular members having an annular space therebetween, in which annular space a plurality of rollers or balls are provided. By this construction, one of the members is enabled to rotate relative to the other member, the rollers or the balls revolving and rotating within the annular space.

448.1 Including plural bearings for each type-bar:
This subclass is indented under subclass 448. Subject matter wherein each of the type-bar* members is provided with at least two of said bearings, at least one such bearing being on each side of the type-bar.

449 Adjustable bearing for type-bar:
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to structure that holds the pivot or axis on which the type-bar* member oscillates, which structure may be varied in its location or effect on the oscillation of the type-bar.

(1) Note. In the typewriter of this subclass the type-bar bearing is adjustable as to its position, its frictional characteristics, or resistance to oscillation of the type-bar, etc.

450 Pin support for type-bar:
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to structure on which the type-bar* member oscillates, which structure comprises a short rodlike component that is provided for each of the type-bar members.

451 Wire support for type-bars:
This subclass is indented under subclass 441. Subject matter wherein significance is attributed to structure on which the type-bar* member oscillates, which structure comprises a slender, elongated component that serves as a pivot for all the type-bars.

452 Type-bar structure:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to the type-bar* member itself or to the portions of the type-bar that are integral therewith.

453 With type-face movable in plane of type-bar movement:
This subclass is indented under subclass 452. Subject matter wherein the type-bar* member is moved from its rest position to its print-point* position along an imaginary surface, and wherein the type-face* element is carried by the type-bar so as to be moved by the type-bar and also to be moved relative to the type-bar, both movements of the type-face elements occurring along said imaginary surface.

(1) Note. The type-face element is usually pivoted to the type-bar, but may be attached to the type-bar by a leaf spring.

454 Type-bar rest or rest support:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to that portion of a typewriter that holds or supports the type-bar* in its rest or normal or inactive position, or wherein significance is attributed to structure that holds said portion on the typewriter.

455 Including metallic material:
This subclass is indented under subclass 454. Subject matter wherein significance is attributed to said portion of said structure being fabricated of metal.

456 Type-bar or type-member guide structure:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to means located on the frame of the typewriter or located adjacent to the print-point* of the typewriter, which means serves to confine the movement of a type-bar* member that is approaching the print-point into a path that will insure the correct positioning of a type-member* (i.e., a type-face* element or a type-die* element) relative to the print-point.

(1) Note. In this subclass the guide means is located in the vicinity of the pivot axis of the type-bar.

457 Including resilient means for energy absorption or kickback:
This subclass is indented under subclass 456. Subject matter wherein the guide means is provided with a yieldable element that is engaged and partially displaced by the type-bar* member print-point*, the displacement of the yieldable element storing the force of movement of the type-bar and/or the return of the yieldable element to its original condition serving to initiate the return of the type-bar to its original rest position.

458 Mounted on platen-carriage:
This subclass is indented under subclass 456. Subject matter wherein the guide means is carried by the carriage* of the typewriter that holds the platen* of the typewriter.

459 For thrusted type-bar:
This subclass is indented under subclass 456. Subject matter wherein the type-bar* member that is guided is an elongated member having a type-face* element (or a type-die* element) thereon located at one end of said member, said type-face being positioned so that its surface is approximately perpendicular to the elongated length of the member, and the movement of said type-bar is in the direction of its length as it moves from its rest position to its print-point* position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
390+, for means for moving a thrusted type-bar member.

460 Guide adjacent print-point:
This subclass is indented under subclass 456. Subject matter wherein said guide means is located in the vicinity of the print-point* of the typewriter.

460.1 Including rollers or balls:
This subclass is indented under subclass 460. Subject matter wherein said guide means is provided with a pair of cylindrical elements or a pair of spheroidal elements to facilitate the guiding of the type-bar* element or the type-bar* member to the print-point*.

(1) Note. Usually the rollers or balls are located one on each side of the type-face* element or the type-bar member at the print-point, and reduce the friction between the guide and the element or member.

460.2 Including pin or collar:
This subclass is indented under subclass 460. Subject matter wherein said guide means includes a projection on the type-face* element or the type-bar* member that enters into an aperture in the guide means at the print-point*, or includes a projection on the guide means that enters into an aperture in the type-face element or the type-bar member when the element or member is at the print-point.

461 Adjustable guide:
This subclass is indented under subclass 456. Subject matter wherein the guide means includes parts that may be varied in their relationship to the typewriter or the print-point*.

462 Type-member structure:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to the type- member* (i.e., the type-face* element or the type-die* element) itself or to a portion of the type-member that is integral therewith.

463 Removable type-member:
This subclass is indented under subclass 462. Subject matter wherein significance is attributed to a type-member* which may be disconnected from the type-bar* member and/or the same or a different type-member replaced on the type-bar.

464 Rotatable on type-bar:
This subclass is indented under subclass 462. Subject matter wherein significance is attributed to a type-member* which is turnable on any axis relative to the type-bar* member on which the type-member is mounted.

465 Pivotable on type-bar:
This subclass is indented under subclass 462. Subject matter wherein significance is attributed to a type-member* which is oscillatable on a axis relative to the type-bar* member on which the type-member is mounted.

466 Type-face or type-die configuration (e.g., reverse image, boldface, piercing, etc.):
This subclass is indented under subclass 462. Subject matter wherein significance is attributed to the shape or physical characteristics or character* imprinting characteristics of a type-face* element or of a type-die* element.

(1) Note. Among the forms of type-face or type-die found in this subclass are such exemplary elements as: a type-face for typing a reverse-image character, a piercing type-die, and embossing type-die, a type-face for boldface (i.e., thick line) imprinting, a type-face for erasing or obliterating by overprinting, a self-cleaning type-face, a stencil-cutting type-die, a miniature or an oversized type-face, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
210, for a ribbon* used for boldface typing.

467 Dust guard for type-bar action mechanism:
This subclass is indented under subclass 383. Subject matter wherein significance is attributed to structure on a typewriter, which structure serves to protect the moving parts of a type-bar* action from the effects of foreign matter which could harm the action if introduced thereinto.

SEE OR SEARCH THIS CLASS, SUBCLASS:
496, for a dust guard for a key*-lever pivot.

468 For type-bar bearing (e.g., shield on type-bar segment):
This subclass is indented under subclass 467. Subject matter wherein the dust-protecting structure is mounted adjacent to the type-bar* member at the location where the type-bar is pivoted for movement.

469 Attachment to type-bar for imprinting extra character:
This subclass is indented under subclass 383. Subject matter wherein a typewriter is provided with a full type-set-assemblage* of type-face* elements carried by type-bar* members, and wherein significance is attributed to the addition to one of the type-bars of an added type-face element that imprints an additional character* on the record-medium*.

470 Ink-impregnated type-face or inker for type-face:

This subclass is indented under subclass 383. Subject matter wherein significance is attributed to means for applying ink* to the type-face* element prior to impressing the type-face against the record-medium* directly (i.e., without the use of an interposed inking ribbon*).

(1) Note. In this subclass the type-face carries its own supply of ink in the form of ink that is impregnated into the type-face element.

471 Including stationary ink pad for inking type-face directly:

This subclass is indented under subclass 470. Subject matter wherein ink* is applied to the type-face* element by an ink-impregnated block of absorbent material, which block is mounted on the typewriter.

(1) Note. Usually the ink-impregnated block also serves as the type-bar* rest that is contacted by the type-face in its rest position.

471.1 And a wick for feeding pad from reservoir:

This subclass is indented under subclass 471. Subject matter wherein the typewriter is provided with a receptacle containing liquid ink* and a conduit including fibrous material, which conduit leads from the receptacle to the ink-impregnated block to transfer ink therethrough by capillary action.

472 KEY-BOARD OR KEY-LEVER-ACTUATING MECHANISM:

This subclass is indented under the class definition. Subject matter wherein significance is attributed to (a) the key-board* of a typewriter, or (b) one or more of the key* elements of the typewriter, or (c) a key lever, which key lever is a fulcrumed bar that is moved by the pressing of a key element is connected to a mechanism that causes relative movement between a type-face* or a type-die* and a record-medium* to effect record-medium, or which bar is connected to a mechanism to initiate or cause the operation of a function* of the typewriter, or (d) means for effecting the pressing of one or more key elements.

(1) Note. Mechanism which locks the key-board or key lever against movement will not be found in this or the indented subclasses. Such mechanism is provided for in subclass 414 under appropriate titles.

SEE OR SEARCH THIS CLASS, SUBCLASS:

100+, for a typewriter having a permutative key-board.

414+, for a key element or a key lever on a bottom-strike typewriter.

663+, for lock mechanism, and see (1) Note above.

473 Including mechanism (e.g., auxiliary key-board) for activating keys:

This subclass is indented under subclass 472. Subject matter wherein a typewriter is provided with means that cause the key* elements of a typewriter key-board* to be pressed successively.

(1) Note. A distinction is made between a key-board having keys that are contacted by the fingers of a typist, and an auxiliary or additional key-board having elements that in effect substitute for the fingers of a typist. The auxiliary key-board may be used when it is desired to use a typewriter having a standard key-board arrangement by overlying the standard key-board with the auxiliary key-board having a different key-board arrangement. The auxiliary key-board converts the pressings of the keys thereon into pressings of the keys of the standard key-board so that a typist familiar with the arrangement of the auxiliary key-board will be able to use a standard key-board typewriter. The auxiliary key-board may also be used to a) convert the key-board of a manually powered typewriter to the key-board of a power-operated typewriter (e.g., an "input" typewriter), (b) provide the keyboard of a manually powered typewriter with the capability of sending electrical signals (e.g., an "output" typewriter, (c) convert the key-board of a cryptographic typewriter, or (d) provide a standard key-

board for the typist when the keyboard of the typewriter is not standard.

474 Electromagnetic key-board-drive mechanism:

This subclass is indented under subclass 473. Subject matter wherein said means includes components that are moved by electromagnetic force to press the key* elements successively.

(1) Note. This subclass is for an auxiliary key-board* wherein pressing the key elements of the auxiliary key-board causes electromagnetic components to press the corresponding key elements of the typewriter. See subclass 479.2 for a keyboard wherein pressing of the key elements moves an electromagnetic component to effect movement of a corresponding key lever.

SEE OR SEARCH THIS CLASS, SUBCLASS:
479.2, and see (1) Note above.

475 Operated by user's leg (e.g., foot, knee, etc.):

This subclass is indented under subclass 473. Subject matter wherein said means is energized by a lower limb of the typist.

(1) Note. A typewriter of this subclass is usually intended to increase typing speed by giving the typist the capability of actuating such functions* as carriage* return, case-shift*, word-space*, etc., by a key* element that is pressed by action of a foot, knee, etc., rather than pressed by a finger. A typewriter for a handicapped person is found in subclass 87 above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
87, and see (1) Note above.

476 For actuating function key only:

This subclass is indented under subclass 473. Subject matter wherein said means causes only a function*-key* element to be pressed.

(1) Note. As discussed in the Glossary, section III, a function is an operation other than the impressing of a type-face* against a record-medium* to imprint a character*. The auxiliary mechanism of this subclass therefor causes pressing of, for example, a tabulator key, a backspace key, a line-space* key, etc.

477 Including means generating a signal for type selecting or other typing function:

This subclass is indented under subclass 472. Subject matter wherein a typewriter is provided with means for producing a pulse or code indication whenever a key* element is pressed.

(1) Note. The key element may be one that is pressed to select a character* or one that is pressed for case-shift* or one that is pressed to perform any function* of the typewriter.

(2) Note. Included in this subclass are disclosures wherein the pressing of a key causes a light to pass to a photoelectric cell, for example, to generate a signal.

SEE OR SEARCH THIS CLASS, SUBCLASS:
100+, for a typewriter having a permutative key-board*, and wherein pressing of different permutations of keys generates signals to type different character symbols.

478 Via slidable code bars:

This subclass is indented under subclass 477. Subject matter wherein the code indication is produced by rectilinearly movable members having notches or grooves in one surface of the members, the members being moved in accordance with the particular key* element that has been pressed, and the signal being generated in accordance with the relative relationship of the notches in the members.

479 Via electrical component (e.g., switch, stylus, etc.) in or with key-board:

This subclass is indented under subclass 477. Subject matter wherein the pulse is produced by a device in an electrical circuit, which device completes the circuit whenever a key* element is pressed.

(1) Note. In the typewriter of this subclass the electrical circuit may include a rod-like element (i.e., stylus) held in a hand of the typist, which element is manually

moved to contact a particular key element to complete the circuit.

479.1 Capacitance-responsive switch:
This subclass is indented under subclass 479. Subject matter wherein the device that completes the electrical circuit is one that embodies the electrical phenomenon known as "capacitance".

479.2 Electromagnetic-responsive switch:
This subclass is indented under subclass 479. Subject matter wherein the device that completes the electric circuit is one that embodies the electrical phenomenon known as "magnetism" that is energized by electricity.

480 Including control of key action (e.g., buffer, etc.):
This subclass is indented under subclass 472. Subject matter wherein significance is attributed to the regulating or governing of the movement or speed of movement or stopping of a key* element or said fulcrumed bar (i.e., a key lever) of a typewriter key-board*.

(1) Note. This subclass provides for a buffer that absorbs some of the kinetic energy imparted to the keys of the typewriter by the typist.

481 By regulating key force or movement (e.g., key dip or stroke):
This subclass is indented under subclass 480. Subject matter wherein significance is attributed to the governing of the amount of pressure applied by the typist to the key* elements of the typewriter or to the distance that the fingers of the typist move during pressing of the key elements.

482 For stenographic typewriter:
This subclass is indented under subclass 472. Subject matter wherein significance is attributed to a typewriter key-board* that is used in a stenos:graphic typewriter.

(1) Note. The term "stenographic typewriter" is defined and discussed in the definitions and notes of subclasses 91+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
91+, and see (1) Note above.

483 For Braille typewriter:
This subclass is indented under subclass 472. Subject matter wherein significance is attributed to a typewriter key-board* that is used in a Braille typewriter.

(1) Note. The term "Braille typewriter" is defined and discussed in the definition and note of subclass 109.1.

SEE OR SEARCH THIS CLASS, SUBCLASS:
109.1, and see (1) Note above.

484 For foreign-language typewriter:
This subclass is indented under subclass 472. Subject matter wherein significance is attributed to a typewriter key-board* that is a foreign-language typewriter.

(1) Note. The term "foreign-language" typewriter is defined and discussed in the definition and note of subclass 109.

SEE OR SEARCH THIS CLASS, SUBCLASS:
109+, and see (1) Note above.

485 Key-board having multiple-character, multiple-movement keys:
This subclass is indented under subclass 472. Subject matter wherein significance is attributed to a key-board* having key* elements that are movable in a plurality of directions as pressed by a typist, each of which directional movements of a key element effecting the imprinting of a different character* symbol on the record-medium*.

(1) Note. In most typewriters a typist presses an individual character key to imprint either the upper-case* or the lower-case* form of a letter, and certain of the character keys are usable to imprint either a number or a particular symbol. The choice of symbols imprinted by pressing a particular key is limited to one of two symbols in such typewriters. In a typewriter of this subclass, a key element is pressed and moved in the plane of its face, and the direction of its movement will effect typing of a different character.

486 Key-board arranged according to character location:

This subclass is indented under subclass 472. Subject matter wherein significance is attributed to the positioning relative to one another of the key* elements that are each pressed to effect imprint of a particular character* symbol.

(1) Note. The vast majority of typewriters are manufactured so that their key-board* arrangements are the same or standard. This standard arrangement permits any typist familiar with the standard key-board to type on any typewriter without looking at the individual keys. In the typewriters of this subclass the arrangement of the keys and characters thereon is emphasized (and is usually other than standard) for various purposes. The standard key-board is also known in the industry as a "qwerty" key-board, and is so called because of the arrangement of letters along one row of keys in that key-board.

487 Color-coded key-board:

This subclass is indented under subclass 486. Subject matter wherein significance is attributed to the color or tint of the key* elements that are positioned on the key-board*, the elements being grouped in accordance with color.

488 Key-board including row of keys having different heights:

This subclass is indented under subclass 472. Subject matter wherein significance is attributed to the positioning of the key* elements of a key-board* in accordance with the distances from the topmost surface of each key element to a common base.

(1) Note. In most typewriters, the key elements are arranged in a plurality of rows, each row extending transversely across the front of the key-board and one row of keys higher or lower than another. This arrangement conforms to the design and manufacturing requirements of most of the industry. In the typewriter of this subclass, the height of one key in a particular row will be different than the height of another key in the same row to conform to the natural shape and reach of the typist's fingers.

489 Key-board including keys grouped to facilitate positioning of typist's fingers:

This subclass is indented under subclass 472. Subject matter wherein significance is attributed to the positioning of the key* elements of a key-board* in accordance with the distance that the fingers of a typist needs to reach from a rest position of the typist's hands to pressing position of the typist's fingers on the key element to be pressed.

490 Key-cap or key-stem structure:

This subclass is indented under subclass 472. Subject matter wherein significance is attributed to a key* cap, which key cap is that part of a key element that is engaged by a finger of the typist during pressing of the key or is visible to the typist and bears a character* symbol corresponding to the character that will be imprinted on the record-medium* when the key is pressed, or wherein significance is attributed to a key stem, which key stem is that part of a key element that connects the key cap to the key lever.

491 Including cushioning means (e.g., yieldable surface):

This subclass is indented under subclass 490. Subject matter wherein either said key* cap or said key stem includes means that tends to absorb some of the force exerted by the typist's fingers as the key elements are pressed during typing.

(1) Note. In this subclass the cushion is usually a yieldable or resilient pad.

491.1 Including underlying air-cushion:

This subclass is indented under subclass 491. Subject matter wherein said means includes a resilient bag or container having a gas therein.

491.2 Including spring supporting key cap or key stem:

This subclass is indented under subclass 491. Subject matter wherein said means includes a resilient or yieldable component that connects said key* cap to said key stem or that connects said key stem to the key lever and holds the parts of the key element in place.

491.3 With sensory indicator (e.g., sound, tactile response, etc.):
This subclass is indented under subclass 491.2. Subject matter wherein said means also includes a member that stimulates one of the senses of the typist to enhance the awareness of the typist to the act of typing.

(1) Note. Included in this subclass is a device to produce an audible "click" when the key* element is pressed, or indicate to the sense of touch a slight, temporary pause in the movement of the key lever.

492 Adjustable in plane of key(s) (e.g., to facilitate reach, rotatable, etc.):
This subclass is indented under subclass 490. Subject matter wherein said key* element has the topmost surface of its key cap lying in a particular plane, and wherein the position of said key cap relative to the key-board* may be varied while the top surface of the key cap remains in said particular plane.

(1) Note. Included herein are typewriters wherein a key cap may be rotated about an axis that is perpendicular to its top surface, or wherein a key cap or a key element may be adjusted to-and-fro or sidewise to fit the reach of a typist's fingers.

493 Including character-bearing disc on key cap:
This subclass is indented under subclass 490. Subject matter wherein said key* cap is provided with a thin, flat, circular component mounted on the top surface of the key cap, which component bears on its top surface an indicium representing the character* symbol that will be imprinted on the record-medium* when the key element bearing said key cap is pressed.

493.1 Secured by encircling ring member:
This subclass is indented under subclass 493. Subject matter wherein said component is mounted on said key* cap and fastened thereto by an annular element that surrounds the component and the key cap.

493.2 With slot for exchanging disc:
This subclass is indented under subclass 493.1. Subject matter wherein said element is provided with an elongated hole therein, through which hole the component may be removed from the key* cap and through which hole the same or another component may be inserted onto the key cap.

494 Having raised or recessed character:
This subclass is indented under subclass 490. Subject matter wherein said key* cap is provided with an indicium representing the character* symbol that will be imprinted on the record-medium* when a key element bearing said key cap is pressed, which indicium projects above the top surface of the key cap or is formed as a groove in the top surface of the key cap.

495 Including means for mounting key cap or key stem:
This subclass is indented under subclass 490. Subject matter wherein significance is attributed to the manner of connecting said key* cap or said key stem to the key lever that is moved when a key element is pressed.

495.1 By spring means:
This subclass is indented under subclass 495. Subject matter wherein the connection between said key* cap or key includes a yieldable or resilient member.

496 Key lever or space-bar mounting structure (e.g., dust guard, buffer, pivot, etc.):
This subclass is indented under subclass 472. Subject matter wherein significance is attributed to a fulcrumed bar that is moved by pressing of a key* element or a space-bar* element on a key-board* element on a key-board*, or to the fulcrum of said bar, or to structure that serves to protect said fulcrum from the intrusion of foreign matter to said fulcrum or to a component that serves to support or stop the movement of said fulcrumed bar.

(1) Note. This subclass provides for the key lever, per se, or the space-bar lever, per se, or the dust guard adjacent to the pivot or the buffer or rest for the lever, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

467+, for a dust guard for a type-bar* action mechanism.

497 WITH CONTROL OF "CARBON PAPER" FOR TYPING PLURAL SIMULTANEOUS COPIES BY SINGLE IMPRESSION (E.G., ON "MANIFOLD SET"):

This subclass is indented under the class definition. Subject matter wherein one typewriter, using one set of key* elements and one type-set-assemblage*, types one "original copy" and at least one "carbon copy", the carbon copy being produced by use of "carbon paper" adjacent to the carbon copy, and wherein significance is attributed to the use of, movement of, or position of, carbon paper in the typing of the carbon copy.

(1) Note. The term carbon paper is a typewriter industry term for a transfer-medium* coated on one of its surfaces with a substance containing carbon or other pigment, this form of transfer-medium having the property that a character* symbol imprinted therewith is easily erased. In contrast to an ink* that impregnates the fibers of a record-medium* or adheres tightly to the surface thereof, a carbon paper includes a pigment that lightly coats the surface of a record-medium and can be easily removed from said surface. In the early technology of carbon paper manufacture, it was made using carbon as the pigment of the coating, therefore its name, despite recent development which has produced carbon paper having other colors and pigments and made without carbon. In use, a sheet or web or ribbon* of carbon paper is placed with its coated surface adjacent to a surface of a record-medium (which is to be the carbon copy) and its uncoated surface adjacent to the undersurface of the record-medium which is to be the "original copy". The impact of a single type-face* will effect the imprint of a corresponding character on both copies. To produce additional carbon copies, a corresponding number of pieces of carbon paper and record-medium are used underlying the first of the carbon copies.

(2) Note. A manifold set is an assemblage that includes at least one piece of carbon paper with its coated surface adjacent to a surface of one piece of a record-medium that is to be the carbon copy. To produce an original copy a piece of record-medium must be placed over the assemblage, and to produce additional carbon copies, other assemblages may be placed under the first-mentioned assemblage.

(3) Note. Use of carbon paper to produce one or more carbon copies is found in this and the indented subclasses. However, other subclasses found higher in the schedule reflect the use of carbon paper for other purposes. One of these subclasses is subclass 190 wherein carbon paper is used to type on the reverse surface of a record-medium. Another of these subclasses is subclass 206.1 wherein carbon paper in the form of a narrow elongated ribbon is used. Also in subclass 227 a narrow carbon ribbon which is usually a carbon-ink film, but may be a carbon-paper ribbon, is fed by a ribbon-feed mechanism.

(4) Note. The typewriter of this subclass includes a structure for changing the feed direction of a sheet or web of carbon paper.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37+, for a flat-platen* typewriter for typing on a manifold set.

190, 206.1 and 227+, and see (3) Note above.

204+, for typing of plural original copies simultaneously.

498 Including prevention of full imprint on "carbon copy" record-medium:

This subclass is indented under subclass 497. Subject matter wherein significance is attributed to the interposition of a shield or barrier between said carbon paper and said carbon copy at selected portions of a print-line*,

whereby said selected portions will not be imprinted on the carbon copy.

499 On record-medium wound around platen together with carbon paper:
This subclass is indented under subclass 497. Subject matter wherein one record-medium* for said original copy, and at least one record-medium for said carbon copy, and at least one of said carbon papers is interleaved as a manifold set, and said manifold set is coiled around the platen* in plural convolutions as typing on the record-medium progresses.

(1) Note. In some of the disclosures of this subclass the carbon paper is attached to the platen.

500 With means for causing slack in web of manifold set:
This subclass is indented under subclass 497. Subject matter wherein the typewriter is to type on a manifold set comprising a plurality of webs of record-medium* material and at least one web or sheet of carbon paper interleaved with the record-medium, webs, the assemblage being under tension as a result of being fed through the typewriter by the platen*, and wherein the tension in the assemblage is relieved whereby accurate feeding is accomplished.

(1) Note. The term "manifold set" is defined in (2) Note of subclass 497, the term "web" is defined as a piece of material having a determinate width and an indeterminate length, and the term "sheet" is defined as a piece of material having a determinate width and a determinate length.

501 By arcuate movement of carbon paper carrier:
This subclass is indented under subclass 500. Subject matter wherein said webs or sheets of carbon paper are supported by or mounted on a member, which member is oscillated while in contact with the webs or sheets whereby to relieve the tension in said webs or sheets and said assemblage.

502 By clamp on carbon paper carrier:
This subclass is indented under subclass 500. Subject matter wherein said webs or sheets of carbon paper are supported by or mounted on a member, which member includes means for firmly gripping said webs or sheets and moving them relative to the typewriter whereby to relieve the tension in said webs or sheets and said assemblage.

503 By use of other than rectangular sheet carbon paper (e.g., disc, etc.):
This subclass is indented under subclass 497. Subject matter wherein said carbon paper is configured to have a shape that is not a sheet of determinate length and determinate width or not a web of indeterminate length and determinate width.

(1) Note. In this subclass the carbon paper is usually a disc of circular configuration, and see subclass 504 below wherein the carbon paper is configured as an endless band that is not considered to be a web of indeterminate length.

SEE OR SEARCH THIS CLASS, SUBCLASS:
504, for an endless band piece of carbon paper.

504 Endless-band carbon paper:
This subclass is indented under subclass 503. Subject matter wherein said carbon paper is configured as a closed-loop strip of material having a determinate width, but the length of which is interminable due to its closed-loop configuration.

505 By multicolor carbon paper:
This subclass is indented under subclass 497. Subject matter wherein said carbon paper is formed having a plurality of colors or pigments thereon, whereby the carbon copy imprinted therewith may have character* symbols imprinted in selected colors.

506 With means to prevent creep (e.g., relative movement) between record-media:
This subclass is indented under subclass 497. Subject matter wherein significance is attributed to means in the typewriter for ensuring that a record-medium* piece for a carbon copy

will be fed through the typewriter at the platen* at exactly the same feed rate as a record-medium piece for an original copy.

507 Including means for creep feed of carbon paper:
This subclass is indented under subclass 497. Subject matter wherein significance is attributed to means for ensuring that said carbon paper will be fed through the typewriter at the platen* at a rate of feed less than the feed rate of the record-medium* for an original copy or the feed rate of the record-medium for a carbon copy.

508 Including spool or support for roll of carbon paper:
This subclass is indented under subclass 497. Subject matter wherein said carbon paper is in the form of a web (i.e., indeterminate length) of material that is coiled in convolutions on a reel, and wherein significance is attributed to said reel or to means for mounting the reel on the typewriter.

509 Including a flat roll or core therefor:
This subclass is indented under subclass 508. Subject matter wherein significance is attributed to the configuration of the coiled convolutions being compressed in a first diametral dimension and expanded in a second diametral dimension at right angles to the first dimension, or wherein significance is attributed to a reel on which a coil of said configuration has been wound.

510 And guide for changing feed direction:
This subclass is indented under subclass 508. Subject matter wherein said carbon paper is advanced from the wound roll to a platen* where the carbon paper is used, the carbon paper being advanced along a path that is not a straight line, and wherein significance is attributed to a member which ensures that the carbon paper will follow the bends of the path along which the carbon paper advances.

510.1 Spool support shiftable to and from platen:
This subclass is indented under subclass 510. Subject matter wherein the wound roll of said carbon paper is mounted on a reel that may be moved toward the platen* or moved away from the platen.

511 Feed mechanism for feed from roll of carbon paper:
This subclass is indented under subclass 503. Subject matter wherein the typewriter is provided with means for advancing said carbon paper from a wound roll thereof to a platen* where the carbon paper is used.

511.1 Responsive to return of carriage:
This subclass is indented under subclass 511. Subject matter wherein the carriage* of a typewriter is moved from a location at which the last character* of a print-line* has been imprinted to a location at which the first character of a succeeding print-line is to be imprinted, and wherein significance is attributed to said advancing of said carbon paper under control of said carriage movement.

511.2 With retraction of carbon paper for reuse thereof (e.g., by slidable carrier):
This subclass is indented under subclass 511. Subject matter wherein said carbon paper is advanced from a wound roll in a first direction toward the platen* for use in typing carbon copies, and wherein said carbon paper is drawn back in a second direction opposite to the first direction so that the carbon paper may be used again in a subsequent typing operation while it is advanced in the first direction for use in typing carbon copies.

(1) Note. The retraction of the carbon paper usually occurs at the completion of one page* (e.g., one form of a plurality of business forms) on the record-medium* web and is for the purpose of repositioning the carbon paper between the next forms to be typed. When the pigment on the carbon paper is depleted, the worn portion of carbon paper is torn off and a fresh supply pulled from the wound roll of carbon paper. In this subclass the carbon paper roll is mounted on a slidable carrier and the movement of the carrier effects advancement and retraction of the carbon paper.

511.3 Carbon paper rewound for retraction:
This subclass is indented under subclass 511.2. Subject matter wherein said carbon paper that is drawn back in the second direction is coiled again onto the same coil from which it was

unwound during the advancement in the first direction.

511.4 By driving carbon paper roll directly from platen (e.g., by endless band):
This subclass is indented under subclass 511.3. Subject matter wherein the force required to coil said carbon paper is taken from the platen* which is rotated during operation of the typewriter.

512 And support for roll of record-medium:
This subclass is indented under subclass 508. Subject matter wherein the record-medium* that is to be typed on is also in the form of a web (i.e., indeterminate length) of material that is coiled in convolutions on a reel mounted on the typewriter.

(1) Note. The typewriter of this subclass may also have a support for a roll of carbon paper.

513 Including relative movement between carbon paper and record-medium:
This subclass is indented under subclass 497. Subject matter wherein the typewriter is provided with means for moving the record-medium* and with means for moving said carbon paper, and wherein significance is attributed to mechanism that causes the carbon paper to move at a rate of movement different from that of the record-medium or in a different direction, whereby the carbon paper and the record-medium are moved with respect to each other.

514 Including positioning of auxiliary record-medium:
This subclass is indented under subclass 513. Subject matter wherein the typewriter is normally used to type on a manifold set that comprises a record-medium* and at least one piece of carbon paper and at least one other record-medium, and wherein significance is attributed to the insertion into the typewriter of an additional record-medium for typing thereon.

(1) Note. The additional record-medium may be inserted from the front of the platen* or from the rear of the platen.

515 Including front insertion of carbon paper or record-medium:
This subclass is indented under subclass 513. Subject matter wherein either said carbon paper or the record-medium* is fed into the typewriter by guiding the leading edge of a piece of carbon paper or record-medium directly between the platen* and the print-point* of the typewriter via structure that is positioned between the platen and the typist.

SEE OR SEARCH THIS CLASS, SUBCLASS:
595+, for insertion of a sheet for "condensed-billing*" from front of platen.

516 By simultaneously advancing record-medium and retracting carbon paper:
This subclass is indented under subclass 513. Subject matter wherein the record-medium* is moved in a direction to line-space* the record-medium, and said carbon paper is moved in the opposite direction at the same time, both movements occurring after typing of one page* of text and before typing on a subsequent page of text.

(1) Note. The movements referred to above do not occur during typing on a particular page of text. Rather during the typing of a page both the record-medium and carbon paper materials move in the same direction, and the specified movements occur between successive pages.

517 By means to arrest advance of carbon paper:
This subclass is indented under subclass 513. Subject matter wherein the record-medium* is moved in a direction to line-space* the record-medium, and wherein the relative movement between the record-medium and said carbon paper is effected by means for preventing the carbon paper from moving, the relative movement occurring after the typing of one page* of text and before typing on a subsequent page of text.

(1) Note. During the typing of a page the record-medium and carbon paper materials are line-spaced together. The action described above occurs between pages,

when the record-medium is advanced and the carbon paper remains stationary.

518 Carbon paper carrier(s) respositionable relative to platen:
This subclass is indented under subclass 513. Subject matter wherein said carbon paper is held to and moved by a member (i.e., a carrier) that is movable on the typewriter with respect to the platen* thereof.

(1) Note. In this and indented subclasses the carbon paper is usually in the form of one or more sheets supported on a carrier usually movable on horizontal rails toward and away from the platen. Movement in the record-feed direction is usually by the platen and a feed-roller*. Retraction of the carbon paper for the purpose of repositioning the carbon paper usually is by manually pushing the carrier away from the platen after the feed mechanism has released the record-medium* and carbon paper material.

518.1 Plural carriers disposed side-by-side for selective use singly or simultaneously:
This subclass is indented under subclass 518. Subject matter wherein the typewriter is provided with two or more of said carriers, and wherein each of said carriers is mounted on the typewriter for movement with respect to the platen* along a path, and the path for each of the carriers is parallel one to the others, whereby any of the carriers is movable along its own path individually or any of the carriers are movable together or at the same time.

518.2 Plural carriers for serial retraction of plural carbon papers:
This subclass is indented under subclass 518. Subject matter wherein the typewriter is provided with two or more of said carriers, and wherein each of said carriers is movable with respect to the platen* in a return direction opposite to the line-space* direction of the record-medium*, and wherein the carriers are moved in said return direction one by one in sequence.

(1) Note. As plural manifold sets of carbon paper and record-medium are typed on, there in a tendency for the carbon paper to stick to the record-medium, which makes it difficult to retract the carbon paper from the platen. The construction provided for in this subclass permits one carbon paper to be retracted, then another, thus facilitating the retraction of the carbon papers despite the tendency to stick together.

SEE OR SEARCH THIS CLASS, SUBCLASS:
519.2+, for another construction for this purpose.

518.3 With means to imprint selectively on one or more media (e.g., by holding selected media away from print-line):
This subclass is indented under subclass 518. Subject matter wherein a typewriter normally is used to type an original copy and several carbon copies simultaneously, and wherein a typist is enabled to type one or more character* symbols on one or more of the copies without typing those character symbols on the other copies.

(1) Note. Usually the original copy and/or one or more of the carbon copies that is/are not to be imprinted are moved to a position away from the print-point* so that a type-face* will not impact thereagainst. An alternative structure to perform this operation is the provision of a second platen* member positioned to shield some of the copies and enable imprinting on the other copies.

518.4 Including retraction of carbon paper and record-medium and subsequent advance of record-medium:
This subclass is indented under subclass 518. Subject matter wherein said carbon paper and the record-medium* is moved on the typewriter with respect to the platen* thereof in a return direction that is opposite to the line-space* direction of the record-medium, and wherein the record-medium is then moved in the line-space direction.

(1) Note. The retraction and subsequent advance is for the purpose of repositioning the carbon paper relative to the next page* or form to be typed, and occurs after the preceding page or form has been typed.

519 Carbon paper carrier movable rectilinearly:
This subclass is indented under subclass 518. Subject matter wherein said carrier for said carbon paper is movable along a straight line.

(1) Note. The path of movement of the carrier is usually along a line that extends at right angles to the axis of the platen* and substantially tangent to the circumference of the platen. The support for the carrier may extend to the rear of the typewriter in a substantially horizontal disposition or may extend substantially vertically from a member fixed at the back of the typewriter.

519.1 With means to hold record-medium against retraction:
This subclass is indented under subclass 519. Subject matter wherein said carbon paper carrier is moved in a return direction that is opposite to the line-space* direction of the record-medium*, and wherein the typewriter is provided with means to ensure that the record-medium will not move in said return direction as the carbon paper moves in that direction.

519.2 Including means to reduce binding of carbon paper during retraction:
This subclass is indented under subclass 519. Subject matter wherein said carbon paper carrier is moved with respect to the platen* in a return direction opposite to the line-space* direction of the record-medium*, and wherein a tendency for the carbon paper to stick to the record-medium, is lessened.

(1) Note. As plural manifold sets of carbon paper and record-medium are typed on, there is a tendency for the carbon paper to stick to the record-medium, which makes it difficult to retract the carbon paper from the platen. The construction provided for in this and indented subclasses enables the separation of the carbon paper from the record-medium, thus facilitating the retraction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
518.2, for another construction for this purpose.

519.3 Including lifting of platen for retraction of carrier:
This subclass is indented under subclass 519.2. Subject matter wherein the original copy and the manifold set(s) of carbon paper and carbon copy record-medium* are normally disposed to be fed from the rear of the platen*, underneath the platen, and to the front of the platen to the print-point*, and wherein the platen is raised from its normal position to a position above and clear of its normal position to enable the carbon paper carrier (and the carbon paper held thereby) to be moved in said return direction.

519.4 With guard over settable parts (e.g., denominational jacks, etc.):
This subclass is indented under subclass 519.2. Subject matter wherein significance is attributed to a structure on the typewriter that serves to protect various movable components from being moved unintentionally as the platen* is lifted.

(1) Note. The components that are apt to be moved unintentionally are usually located at the rear of the typewriter, near the path of movement of the manifold sets that are being fed to the platen, and are usually the denominational-stops* of the typewriter.

519.5 With relative movement between record media (e.g., for condensed-billing, etc.):
This subclass is indented under subclass 519.2. Subject matter wherein significance is attributed to movement of one record-medium* with respect to another record-medium, this movement being in addition to the movement of one or more carbon papers with respect to the record-medium.

(1) Note. The relative movement of record media usually is for the purpose of facilitating condensed-billing*.

519.6 With support or guiding or positive-driving structure for carrier (e.g., table, adjustable stop, etc.):
This subclass is indented under subclass 519. Subject matter wherein significance is attributed to means for mounting said carrier for said carbon paper, or to means for restraining said carrier for movement along its intended line of

movement, or to means for effecting movement of the carrier as the platen* is incrementally rotated.

519.7 Carbon paper carrier on endless member:
This subclass is indented under subclass 518. Subject matter wherein said carrier for said carbon paper is moved by a component that is trained around two or more pulleys and is in the form of a closed-loop band.

(1) Note. This subclass also provides for mechanism for adjusting the endless member laterally of its direction of movement and for mechanism for adjusting the carrier relative to the endless member.

520 Carbon paper holder (e.g., loading board, etc.):
This subclass is indented under subclass 497. Subject matter wherein significance is attributed to a means for supporting one or more pieces of said carbon paper, or to means for enabling a typist to associate carbon paper with record-medium* pieces or align a set of associated pieces with the typewriter for proper subsequent feed of the pieces to the platen*.

521 FOR TYPING ON CARD IN CARD HOLDER:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to a typewriter provided with means for supporting or retaining a relatively stiff piece of record-medium* material while the typewriter is being used to imprint character* symbols on the record-medium.

(1) Note. Due to the stiffness of the record-medium (i.e., card) it does not readily conform to the periphery of the cylindrical platen* around which the card is partially wrapped during typing. This causes problems, especially during the typing of a print-line* near the top or bottom edge of the card. Other problems in typing on a card are due to the size of the card, which is often smaller in length and width than a sheet. Disclosures in this and the indented subclasses are directed to means for over-coming the problems caused by typing on a card. This subclass provides for a retaining means that may be removed from and replaced on the typewriter easily.

522 Flexible holder fed around platen with single card:
This subclass is indented under subclass 521. Subject matter wherein the retaining means comprises a sheet of material into which or onto which one record-medium* card is temporarily secured so that during typing no relative movement occurs between the record-medium and the retaining means, which retaining means is sufficiently bendable to be partially wrapped around a cylindrical platen* together with the record-medium secured thereto, whereby both the retaining means and the record-medium are moved in line-space* increments during typing on the record-medium.

(1) Note. This subclass is also for a disclosure wherein one manifold set [which term is defined in (2) Note of subclass 497] is temporarily secured to a flexible retainer or holder.

523 On card pierced or indented to aid holding:
This subclass is indented under subclass 521. Subject matter wherein the retaining means has projections thereon that enter into, or cause the formation of, holes or depressions in the surface of the record-medium* card, whereby the card is more securely retained by the retaining means.

524 Holder movable responsive to case-shift:
This subclass is indented under subclass 521. Subject matter wherein the typewriter is provided with a case-shift* mechanism having relatively movable parts, and wherein the retaining means is moved when the case-shift parts are moved.

525 Card holder carried by platen:
This subclass is indented under subclass 521. Subject matter wherein the retaining means is supported by the platen* of the typewriter for movement therewith.

526 And actuated in response to platen rotation:
This subclass is indented under subclass 525. Subject matter wherein the platen* is incrementally turned for line-space* movements during operation of the typewriter, and wherein the retaining means includes a device for con-

tacting the record-medium* card and holding the card to the retaining means, which device moves toward the card for holding thereof as the platen starts its turning movement.

527 With platen surface modified for card:
This subclass is indented under subclass 525. Subject matter wherein the platen* of the typewriter is a cylinder having a periphery that is altered from a circular periphery, the alteration being made for the purpose of accommodating the record-medium* card or the retaining means for the card.

527.1 Including card gripper on platen:
This subclass is indented under subclass 527. Subject matter wherein the alteration is made for the purpose of accommodating a device that is movable to closely contact the card and hold it to the platen*.

(1) Note. In some typewriters the card gripper is pivotable with respect to the platen.

527.2 Including axially extending slot or hollow in platen:
This subclass is indented under subclass 527. Subject matter wherein the alteration is a narrow elongated groove in the periphery of the platen*, or is a cavity in the platen, which groove or cavity is parallel to the axis of rotation of the platen.

528 Holder attached via detachable arms at ends of platen:
This subclass is indented under subclass 525. Subject matter wherein the retaining means is supported by the platen* by way of members that are located at opposite extremities of the platen, which members are removable from and replaceable on the platen.

529 Holder attached via pins on holder or via adhesive attachment:
This subclass is indented under subclass 525. Subject matter wherein the retaining means is supported by the platen* by way of projections on said retaining means that interfit into depressions on or in the surface of the platen, or wherein the retaining means is supported by the platen* by way of a device that adheres said retaining means to the surface of the platen.

530 Holder attached via element (e.g., band) gripping platen periphery:
This subclass is indented under subclass 525. Subject matter wherein the retaining means is supported by the platen* by way of a member that has frictional (i.e., nonslidable) contact with the circumferential surface of the platen, or wherein said member extends around the entire circumference of the platen.

531 Including line-spacing of holder or card:
This subclass is indented under subclass 521. Subject matter wherein the record-medium* card is moved by the retaining means in a direction to feed the card in line-space* distances to enable imprint of successive print-line* rows.

(1) Note. In this or indented subclasses the card may be line-spaced by moving it together with its holder, or may be line-spaced by moving the card relative to a stationary holder.

532 Variable line spacing (e.g., platen creep):
This subclass is indented under subclass 531. Subject matter wherein the distance that the retaining means moves between successive print-line* rows is changed.

(1) Note. The typewriter of this subclass sometimes has a platen* moved with "platen creep", (i.e., increment of platen rotation smaller than usual line-space* increment).

533 In a curvilinear path:
This subclass is indented under subclass 531. Subject matter wherein the retaining means is moved with the record-medium* card thereon along a line that is continuously bending and without angles.

534 By pinion and rack:
This subclass is indented under subclass 531. Subject matter wherein the retaining means is moved with the record-medium* card thereon by way of two members, one member being a toothed wheel or disc that is rotated and the other member being a toothed, elongated bar that is connected to the retaining means, and wherein the teeth of the two members intermesh, whereby the rotation of the toothed

wheel effects movement of the toothed bar and the retaining means.

535 Including support engaging bottom edge of card:
This subclass is indented under subclass 521. Subject matter wherein the means for retaining the record-medium* cards includes a member having an upwardly oriented surface, which surface is used as a rest for the lowermost edge of a vertically upstanding card.

536 Card holder mounted on typewriter frame:
This subclass is indented under subclass 521. Subject matter wherein the retaining means is supported by a stationary portion of the typewriter.

(1) Note. In this and indented subclasses the card holder usually includes an element similar to a paper-finger* that is closely adjacent to the surface of the platen* and that tends to urge the record-medium* card toward the platen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
543, for similar structure that is mounted on the carriage* of the typewriter.

537 Including means enabling movement of card relative to holder:
This subclass is indented under subclass 536. Subject matter wherein the retaining means includes a device that causes the record-medium* card to be moved with respect to the retaining means.

538 Transparent card holder:
This subclass is indented under subclass 536. Subject matter wherein significance is attributed to a retaining means that is made of a material through which light may pass, whereby a typist is enabled to see the printline* on the record-medium* as the character* symbols are being imprinted.

539 Including finger movable away from holding position:
This subclass is indented under subclass 536. Subject matter wherein the retaining means includes a member that tends to urge the record-medium* card against the surface of the platen*, which member may be moved away from the platen to a location at which it does not urge the card to the platen.

540 Spring urged to holding position:
This subclass is indented under subclass 539. Subject matter wherein the retaining means includes a yieldable element that provides the force to urge the record-medium* card against the surface of the platen*.

(1) Note. The typewriter of this subclass sometimes is provided with a second element that provides additional force to urge the record-medium card against the surface of the platen.

541 Including a feed-roller:
This subclass is indented under subclass 521. Subject matter wherein the retaining means includes a feed-roller* that cooperates with the platen* to feed a record-medium* card.

542 Card holder mounted on platen-carriage frame:
This subclass is indented under subclass 521. Subject matter wherein the retaining means is supported on the structure that also supports a carriage* that moves a platen* relative to the typewriter.

(1) Note. The typewriter of this subclass includes a feed-roller* shaft that supports the card holder, or the card holder is supported on an element pivotable about an axis located behind the platen.

543 Including gripper or means urging card against platen:
This subclass is indented under subclass 521. Subject matter wherein the retaining means includes two members, each of which members has a surface that faces the surface of the other member, and wherein the surfaces are spaced apart a distance corresponding to one of the dimensions of the record-medium* card, whereby the card will fit between and be held by the two surfaces, or wherein the retaining means includes a member that tends to urge the record-medium card against the surface of the platen*.

(1) Note. The urging of this subclass is usually mounted on the carriage* of the typewriter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

536+, for similar structure that is mounted on the frame or a fixed part of the typewriter.

544 Backing for stencil cutting (e.g., celluloid strip, etc.):

This subclass is indented under subclass 521. Subject matter wherein significance is attributed to a retaining means that holds a record-medium* card, or to a protecting means that protects the platen* from damage by the impacting type-face* elements while the typewriter is being used for cutting a stencil.

(1) Note. As referred to herein, a "stencil" is a card or sheet having a surface that is normally impervious to the passage of ink* from one surface to the opposite surface. However, when the stencil is impacted by a type-face element, the surface is modified along the line that represents the character* symbol corresponding to the type-face, the modification being such as to permit ink to flow from one surface to the opposite surface. The card or sheet that has had its surface so modified is then usable in a "Mimeograph" printing machine. (The term Mimeograph is a trademark.) The operation of typing on the stencil material is known as "cutting" the stencil.

545 FOR LINE-SPACING BY INCREMENTAL ROTATION OF PLATEN:

This subclass is indented under the class definition. Subject matter wherein a typewriter is provided with a cylindrical platen* and wherein significance is attributed to the turning of said platen in step by step manner to effect line-space* distances to a piece of record-medium* that is held to and backed by said platen.

(1) Note. As discussed in the definition of "line-space" in the Glossary, section III, line-space is usually effected in units of one, two or three line-spaces, and sometimes effected in half spaces (e.g., one-half, one and one-half or two and one-half), but rarely more than three line-spaces in any single unit of movement. In some typewriters provision is made for multi-incremental line-spacing, which is the rotation of a platen through increments greater than three line-spaces, usually for the purpose of quickly moving a sheet of record-medium out of the typewriter, or for the purpose of effecting a line-space distance between the end of one paragraph of text and the start of another paragraph, which distance is greater than normal.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44+, for line spacing of a flat platen.

546 To facilitate condensed-billing (i.e., by determining a desired limit or amount of retrograde or advance platen movement):

This subclass is indented under subclass 545. Subject matter wherein significance is attributed to a typewriter that is capable of performing a condensed-billing* operation by regulating the increments (i.e., the step by step turning movements) of rotation of the platen* that cause the record-medium* to move in a line-space* direction and regulating increments of rotation of the platen that cause the record-medium to move in a direction opposite to the line-space direction.

(1) Note. As discussed in the Glossary, section III, the term "condensed-billing" is used in the typewriter industry to refer to an operation wherein one record-medium (e.g., a bill or financial statement) contains information (e.g., an address) and a second record-medium is to contain only a summary of the information. The line-spacing mechanism of this and indented subclasses facilitates the production of the condensed-billing record.

547 Including stop structure (e.g., traveling stop, etc.):

This subclass is indented under subclass 546. Subject matter wherein the incremental rotation of the platen* is regulated by the contact of one movable abutment with another stationary abutment, one of said abutments being on or connected to the platen and the other of said abutments being on or connected to the type-

writer frame, whereby the platen rotation is positively halted by such contact.

547.1 For arresting platen at limit of both retrograde and advance movement:
This subclass is indented under subclass 547. Subject matter wherein the incremental rotation of the platen* in a direction that causes record-medium* movement in a line-space* direction is halted by contact of a movable and a stationary abutment, and wherein platen rotation in an opposite direction is also halted by contact of a movable and a stationary abutment.

(1) Note. Rotation of the platen in either direction may be stopped by the same or different abutments.

547.2 By stop travelling in a rectilinear path:
This subclass is indented under subclass 547.1. Subject matter wherein the movable abutment is displaced along a straight line.

547.3 By lever or push-rod drive for platen:
This subclass is indented under subclass 547.1. Subject matter wherein the rotation of the platen* in both of said directions is caused by a movable arm that is moved to-and-fro with reciprocatory or oscillatory movement, the movement of the arm in both directions being limited by contact of said abutments to correspond the arm movement to a desired degree of rotation of the platen in either direction.

547.4 Via gear drive:
This subclass is indented under subclass 547.3. Subject matter wherein the movable arm is connected to the platen* by way of intermeshed coacting rotatable toothed members.

547.5 Including lever on axis transverse to platen axis:
This subclass is indented under subclass 547.4. Subject matter wherein the platen* rotates about a first axis that extends lengthwise thereof, and wherein said movable arm oscillates about a second axis that extends at right angles to said first axis.

547.6 Including relatively adjustable coaxial gear segments:
This subclass is indented under subclass 547.4. Subject matter wherein the connection of the movable arm to the platen* includes a rotatable toothed wheel coacting with an assemblage of toothed members, which assemblage comprises a plurality of toothed elements, each element being an arcuate portion of a toothed wheel, the elements being disposed side by side to rotate about a common axis and being repositionable one with respect to the other(s) about the common axis so as to vary the peripheral extent of the teeth of the assemblage that coacts with the rotatable toothed wheel, whereby the number of teeth of the assemblage that is in mesh with the toothed wheel may be varied to vary the platen rotation.

547.7 Via pawl and ratchet wheel drive:
This subclass is indented under subclass 547.3. Subject matter wherein the movable arm is connected to the platen* by way of a pawl* joined to the movable arm and a ratchet* in the form of a disc joined to the platen.

547.8 With spring motor:
This subclass is indented under subclass 547.7. Subject matter wherein said ratchet* is joined to the platen* by way of a resilient component, a portion of which component is moved to tension the component, and another portion of which component is moved by the tension in the component to rotate the platen.

(1) Note. The spring motor of this subclass may be used to rotate the platen in a direction to feed the record-medium* (i.e., move it in line-space* direction) or to retract the record-medium (i.e., move it in a direction opposite to line-space direction).

548 With graduated scale (e.g., on drum periphery):
This subclass is indented under subclass 546. Subject matter wherein the typewriter is provided with a device that facilitates the positioning of the condensed-billing* record-medium*, which device includes a measuring instrument calibrated in units that indicate the extent to which the platen* should be rotated in either

direction of its rotation to correspond to the desired location of said record-medium.

(1) Note. The measuring instrument (i.e., scale) may be on the circumference of a circular member or drum.

549 Actuated by key on key-board:
This subclass is indented under subclass 545. Subject matter wherein the typewriter is provided with mechanism to effect incremental rotation of the platen* in response to a depression of a key* on the key-board* of the typewriter.

(1) Note. In most typewriters having a key-operated line-space* mechanism the power to effect the line-spacing is electrical power from an external source. A non-electric or manual typewriter is usually provided with a line-space lever that is powered by the hand of the typist.

550 For multi-incremental rotation (e.g., "platen sweep"):
This subclass is indented under subclass 545. Subject matter wherein the typewriter is provided with mechanism to effect a plurality of increments of rotation greater than three such increments in one stroke of an actuating lever.

(1) Note. This subclass provides for mechanism to facilitate rapid line-spacing* and is often termed "platen* sweep" in the typewriter industry. It is used, for example, to feed a record-medium* piece into position for typing the first print-line* thereon after insertion of the piece into the typewriter, or for spacing a greater than usual distance between the last print-line of one paragraph and the first print-line of a succeeding paragraph. The number of platen-sweep increments are usually variable within a range or, for example, four increments to about 18 increments or more.

551 For line-spacing in forward or reverse direction:
This subclass is indented under subclass 545. Subject matter wherein the typewriter is provided with mechanism for effecting line-space* distances to a piece of record-medium* in the usual direction of record-medium feed or in a direction opposite to said usual direction.

552 With "floating" platen:
This subclass is indented under subclass 545. Subject matter wherein the typewriter is provided with a platen* that is supported in its typing position solely by platen-supporting rollers underlying the platen, and wherein incremental rotation of the platen is effected by incrementally rotating said platen-supporting rollers that are in frictional contact with the platen.

(1) Note. This form of platen support does not require bearings and carriage* structure to support the ends of the platen, thereby making it possible to type on a record-medium* piece that is wider than the length of the platen. For feeding of such a piece, see subclass 623.

SEE OR SEARCH THIS CLASS, SUBCLASS:
623, and see (1) Note above.

553 Via line-space/carriage-feed-release actuator:
This subclass is indented under subclass 545. Subject matter wherein significance is attributed to structure on the typewriter that performs the following operations substantially concurrently: (a) the platen* is caused to be turned through one or more increments, and (b) the carriage* is enabled to be moved in a carriage-return direction opposite to the character-space* direction, and (c) the structure that normally engages a portion of the carriage to move the carriage in the character-space direction is temporarily disengaged, whereby the carriage-return movement is made relatively quiet.

(1) Note. In the typewriter of this subclass the structure is directed to means for line-spacing* which also, by some connection to the carriage feed, effects release of the carriage feed for purposes as stated in the definition. For structure to cause carriage feed release, see subclasses 334+ above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334+, and see (1) Note above.

554 For facilitating even wear of platen surface (e.g., by irregular increments, etc.):
This subclass is indented under subclass 545. Subject matter wherein significance is attributed to the movement or adjustment of a platen* for the prevention of damage or deterioration to the platen by reason of the repeated impacting of type-face* elements on the same locations on the surface of the platen.

(1) Note. Many of the disclosures of this subclass include mechanisms for irregular line-spacing* to insure that successive print-line* rows will not be impacted against the same longitudinal paths of the platen, thus the longitudinal depressions in the surface of the platen that would otherwise be formed are distributed over the entire surface of the platen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
555+, for structure to adjust the platen for irregular increments.

555 By irregular increments of platen rotation (e.g., for adjustment of platen relative to its actuator, etc.):
This subclass is indented under subclass 545. Subject matter wherein the typewriter is provided with a first mechanism for effecting normal increments of platen* rotation that correspond to normal line-space* distances for the feeding of record-medium* between successive print-line* rows, and wherein significance is attributed to a second mechanism that effects or enables rotation of the platen in other than normal increments that correspond to other than normal line-space distances for irregular feeding of record-medium.

(1) Note. The irregular platen rotation increment may enable imprinting of successive print-lines that are spaced apart by distances that are greater than or less than normal line-space distances, or may enable imprint of subscript or superscript character* symbols.

556 Including disconnecting ratchet wheel from platen (e.g., declutching ratchet, etc.):
This subclass is indented under subclass 555. Subject matter wherein said first mechanism for effecting normal increments of platen* rotation includes a ratchet* in the form of a disc or wheel that is joined to or engaged with the platen, and wherein said second mechanism for effecting other than normal increments unjoins or disengages the ratchet from the platen, thereby enabling rotation of the platen relative to its ratchet.

556.1 Via relatively displaceable pin and slot members:
This subclass is indented under subclass 556. Subject matter wherein the ratchet* wheel and the platen* (i.e., the two components referred to below in this definition) are normally joined or engaged by way of at least one projection on one of said components that interfits with at least one aperture on the other of said components, and wherein the unjoining or disengaging occurs by moving the projection to disengage it from the aperture.

556.2 Via toothed ring and locking member(s):
This subclass is indented under subclass 556. Subject matter wherein the ratchet* wheel and the platen* (i.e., the two components referred to below in this definition) are normally joined or engaged by way of a first member on one of said components and a second member on the other of said components, which first member has notches extending along an arc and which second member is a projection that interfits with one of the notches in the first member, and wherein the unjoining or disengaging occurs by moving the two said members apart.

556.3 Including pivotable locking member(s):
This subclass is indented under subclass 556.2. Subject matter wherein said second member (i.e., the projection) is mounted to swing to-and-fro about an axis, thus enabling the projection to move in an arc of a circle.

556.4 Including radially displaceable locking member(s):
This subclass is indented under subclass 556.2. Subject matter wherein said second member (i.e., the projection) is mounted to move along

a line that is a radius of the arc along which the notches of said first member extend.

557 Via ball or roller clutching member(s):
This subclass is indented under subclass 556. Subject matter wherein the ratchet* wheel and the platen* (i.e., the two components referred to below in this definition) are normally joined or engaged by way of a spherical or cylindrical member, the surface of which member frictionally engages a surface of each of said two components, and wherein the unjoining or disengaging occurs by moving the surface of the member away from a surface of either or both components.

558 Via binding jaws gripping annular flange between jaws:
This subclass is indented under subclass 556. Subject matter wherein the ratchet* wheel and the platen* (i.e., the two components referred to below in this definition) are normally joined or engaged by way of a first member which is on one of said components and is a radially projecting rim or ring having parallel radial faces on opposite sides of the rim, and a second member which is on the other of said components and includes two parts that straddle the rim of the first member, the two parts of the second member being movable toward each other with the rim therebetween to frictionally engage the radial faces of the first member, and wherein the unjoining or disengaging occurs by moving the parts of the second member away from each other and the corresponding radial faces of the first member.

559 Via friction plate members engageable by axial displacement (e.g., pressure plate, etc.):
This subclass is indented under subclass 556. Subject matter wherein the ratchet* wheel and the platen* (i.e., the two components referred to below in this definition) are normally joined or engaged by way of a first member connected to one of the components and a second member connected to the other of the components, both of which components and both of which members are rotatable on a common axis, and wherein said members are positioned one relative to the other so that a substantially radial surface of one member faces a substantially radial surface of the other member and one member is movable relative to the other along the common axis, whereby movement of one member toward the other into nonslidable contact with the other effects joining or engagement of the members and of the components connected thereto for normal incremental rotation of the platen by the ratchet*, and movement of one member away from the other effects unjoining or disengagement of the members.

559.1 Friction members have cooperating conical surfaces:
This subclass is indented under subclass 559. Subject matter wherein the substantially radial surface of each of said members is modified so that the surface of one member is like the exterior surface of a cone and the surface of the other member is like the interior surface of a cone, the facing surfaces of the members corresponding one to the other.

560 Via frictional engagement of periphery of cylindrical member:
This subclass is indented under subclass 556. Subject matter wherein the ratchet* wheel and the platen* (i.e., the two components referred to below in this definition) are normally joined or engaged by way of a first member connected to one of the components and a second member connected to the other of the components, which first member has a cylindrical circumferential surface and which second member has a surface that is movable toward the circumferential surface to be in nonslidable contact therewith for normal incremental rotation of the platen, and wherein the second member is movable away from the circumferential surface for unjoining or disengaging the members.

560.1 Friction member(s) acting on inner periphery of drum:
This subclass is indented under subclass 560. Subject matter wherein said first member is hollow and has an interior circumferential surface and said second member contacts said interior surface for joining or engaging the components or moves away from the interior surface for unjoining or disengaging the components.

560.2 Pivotable member(s):
This subclass is indented under subclass 560.1. Subject matter wherein said second member is movable toward and away from the interior

surface in a path that is an arc of a circle about an axis, the axis being a fixed or movable axis.

561 Expandable band or split ring:
This subclass is indented under subclass 560.1. Subject matter wherein said second member is a circular or coiled element having a periphery that may be enlarged to conform to or mate with the interior surface of said first member to make nonslidable contact therewith, or may be diminished to unjoin or disengage the members.

562 Including settable stops:
This subclass is indented under subclass 555. Subject matter wherein said second mechanism includes means for rotating the platen* and two or more abutments, a first of which abutments is stationary relative to the platen and a second of which abutments is connected to the platen so that as the platen rotates the second abutment will move toward the first abutment until contact of the abutments is made and platen rotation will cease, and wherein the distance between the abutments prior to platen rotation may be varied.

563 Including plural detents selectively engageable with ratchet wheel:
This subclass is indented under subclass 555. Subject matter wherein said first mechanism includes a first ratchet* in the form of a disc or wheel having teeth protruding from a peripheral edge thereof and notches between the teeth, and also includes a first arm having a protrusion that meshes with one of the notches in the ratchet disc to restrain rotation of the disc, and wherein said second mechanism includes a second arm having a protrusion that meshes either with notches in the first ratchet disc or with notches in a second ratchet disc, and wherein the first arm is used for normal incremental rotation of the platen* or the second arm is used for other than normal rotation of the platen.

(1) Note. In the device defined above, if one ratchet wheel is used with two detents that are alternately engaged with the ratchet wheel, the space between the detents in the circumferential dimension of the ratchet wheel is such as to provide irregular increments of detented ratchet-wheel position. If two ratchet wheels are used with two detents, one of the ratchet wheels is provided with teeth having a circumferential spacing different from the other, and one detent is used with one of the ratchet wheels for normal incremental rotation, and the other detent is used with the other ratchet wheel for other than normal incremental rotation.

564 Including a drive member engageable with line-space ratchet wheel:
This subclass is indented under subclass 555. Subject matter wherein said first mechanism for effecting normal increments of platen* rotation includes a ratchet* disc having teeth and notches on the peripheral edge thereof and being connected to the platen, a first pawl* that engages in one of the notches between the teeth and moves to rotate the platen incrementally, and a detent (i.e., an arm having a protrusion that meshes with one of the notches to restrain rotation at the incremental position), and wherein said second mechanism for effecting other than normal increments includes either (a) a second pawl that engages in one of the notches of the ratchet and moves to rotate the platen to the extent of a partial increment, or (b) and additional means to move said first pawl to the extent of a partial increment.

564.1 Via displaceable detent:
This subclass is indented under subclass 564. Subject matter wherein said second mechanism includes means to move said detent (i.e., of said first mechanism) while it is in mesh with one of the notches of said ratchet* disc in an arcuate path to the extent of a partial increment, thereby rotating the platen* to a similar extent.

565 Detent-release structure:
This subclass is indented under subclass 555. Subject matter wherein said first mechanism for effecting normal increments of platen* rotation includes a ratchet* disc having teeth and notches on the peripheral edge thereof and being connected to the platen, a pawl* that engages in one of the notches between the teeth and moves to rotate the platen incrementally, and a detent (i.e., and arm having a protrusion that meshes with one of the notches to restrain rotation at the incremental position), and wherein said second mechanism includes means for moving the protrusion of said detent

out of mesh with any of the notches, and wherein significance is attributed to structure that effects or enables the movement of the detent.

566 With friction brake for platen:
This subclass is indented under subclass 565. Subject matter wherein said second mechanism also includes means for restraining rotation of the platen* while the detent is out of mesh with the notches of the ratchet* disc, which means includes a first surface on or connected to the platen and a second surface nonrotatably associated with the platen and relatively movable into nonslidable contact with the first surface to prevent platen rotation.

566.1 With simultaneous disengagement of drive pawl:
This subclass is indented under subclass 565. Subject matter wherein said second mechanism also includes means to move said pawl* (i.e., of said first mechanism) out of contact or engagement with any of the notches of the ratchet* disc at the same time that said detent (i.e., of said first mechanism) is out of mesh with any of the notches in the ratchet disc.

567 Including gear (e.g., differential gear, etc.) structure:
This subclass is indented under subclass 555. Subject matter wherein said second mechanism includes at least two intermeshing and coacting toothed members that connect said first mechanism with the platen*.

(1) Note. Usually the gear drive, for example, a differential drive or a planetary gear arrangement, is used to connect the platen ratchet* wheel and the platen so as to provide for adjustment of the platen relative to the ratchet wheel.

568 By electric-power drive:
This subclass is indented under subclass 545. Subject matter wherein the incremental rotation (i.e., step-by-step turning) of the platen* is accomplished with the help of force derived from electrical energy.

(1) Note. The forms of electrical power used include: an electromagnet, a stepping motor (i.e., an electric motor operated incrementally), a rotating electric motor, etc., the named devices being only exemplary of those that may be used.

569 By gear train (e.g., including a clutch):
This subclass is indented under subclass 545. Subject matter wherein the incremental rotation of the platen* is accomplished by way of a plurality of toothed members, the teeth of which members intermesh to cause movement of one member when another member is moved, one of said members being connected to the platen.

(1) Note. Included in this subclass are disclosures in which a differential gear train or a planetary gear train is used, or in which a clutch device is used to connect a gear train to the platen.

570 By double-cam drive:
This subclass is indented under subclass 545. Subject matter wherein the incremental rotation of the platen* is accomplished by way of an element or an assemblage of elements, which element or assemblage is moved to-and-fro by two cam surfaces that act together on the same rotating member, and which element or assemblage is connected to the platen.

(1) Note. A “cam surface” is defined as the edge periphery of a disc that rotates about an axis, the radial distance from the axis to the periphery varying around the periphery. As the disc rotates, the distance of a follower that is in contact with the periphery will increase and decrease relative to the axis of the disc, thus the rotation of the disc will substantially effect radial movement of the follower. The cam surfaces may be on separate disc elements or may be on a single member having separate cam surfaces.

571 By friction drive (e.g., including regulation of increments):
This subclass is indented under subclass 545. Subject matter wherein the incremental rotation of the platen* is accomplished by way of two members, each member having a surface in nonsliding contact with the other, one of which members is connected to the platen and the other of which members is connected to an

actuator that is moved when platen rotation is desired.

(1) Note. In some typewriters of this subclass a predetermined extent of movement of the actuator effects a predetermined number of degrees of rotation of the platen, which number of degrees comprises a predetermined number of steps or increments of platen rotation, and the number of such steps effected by any movement of the actuator may be changed from one predetermined number of steps to a different predetermined number of steps, whereby a change may be made in the number of degrees of platen rotation that is accomplished by an extent of actuator movement. The change may be accomplished by changing the amount of actuator movement, or by changing the range of actuator movement over which the actuator is effective to cause platen rotation.

572 By pawl and ratchet wheel drive:
This subclass is indented under subclass 545. Subject matter wherein the incremental rotation of the platen* is accomplished by way of a ratchet* disc connected to the platen that is intermittently rotated step-by-step by a pawl* that is moved by an actuator when platen rotation is desired.

573 Including rectilinearly movable pawl:
This subclass is indented under subclass 572. Subject matter wherein the pawl* is moved to-and-fro by an actuator along a straight line to contact and rotate the ratchet* incrementally.

573.1 And resilient drive:
This subclass is indented under subclass 573. Subject matter wherein the actuator is connected to the pawl* or to the ratchet* by way of a yieldable connection that enables a different extent of actuator movement than is imparted to the pawl by the actuator.

574 Including pawl carrier coaxial with ratchet wheel:
This subclass is indented under subclass 572. Subject matter wherein the platen* is incrementally rotated about an axis that extends lengthwise of the platen, and the ratchet* disc is connected to the platen to rotate about the same axis, and wherein said actuator effects to-and-fro oscillation of a member about said axis, said pawl* being mounted on said member for corresponding oscillation of the pawl so that the pawl engages a notch of the ratchet disc at a first location relative to the typewriter and moves the ratchet and the platen through a first predetermined number of degrees of platen rotation.

574.1 And means to regulate pawl engagement or drive:
This subclass is indented under subclass 574. Subject matter wherein a predetermined extent of movement of the actuator effects a predetermined extent of movement of said member and the pawl* mounted thereon to move the ratchet* disc and the platen* connected thereto through a first predetermined number of degrees of platen rotation that correspond to a first predetermined number of steps of platen incremental movement, and wherein the number of steps effected by a movement of the actuator may be changed by changing the location at which said pawl engages a notch of said ratchet disc to a second location relative to the typewriter so that a second predetermined number of degrees of rotation of the platen will be caused, that will correspond to a second predetermined number of steps of platen incremental movement.

575 Including means to regulate pawl engagement or drive:
This subclass is indented under subclass 572. Subject matter wherein a predetermined extent of movement of the actuator effects movement of the pawl* to engage a notch in the ratchet* disc at a first location relative to the typewriter and moves the ratchet and the platen* through a first predetermined number of degrees of platen rotation that correspond to a first predetermined number of steps of platen incremental movement, and wherein the number of steps effected by movement of the actuator may be changed so that a second predetermined number of degrees of platen rotation will be caused that will correspond to a second predetermined number of steps of platen incremental movement.

575.1 By movable ratchet-wheel shield:
This subclass is indented under subclass 575. Subject matter wherein the change in the number of steps effected by movement of the actuator is caused by an element having a surface with which the pawl* or a portion connected thereto is in contact until the pawl is moved to said first location, which element is movable so that the pawl is in contact with the surface until the pawl is moved to a second location, at which second location the pawl will engage a notch in the ratchet* disc to effect a second predetermined number of steps of platen incremental movement.

575.2 By stop adjustable to limit movement of actuator:
This subclass is indented under subclass 575. Subject matter wherein the extent of movement of the actuator is predetermined by an abutment that is contacted by the actuator at the end of its movement, and wherein the change in the number of steps effected by movement of the actuator is caused by changing the position of the abutment relative to the actuator.

576 Via foldable line-space actuator:
This subclass is indented under subclass 545. Subject matter wherein significance is attributed to an actuator for effecting the step-by-step increments of platen* rotation, which actuator includes an elongated bar that is moved by the hand of a typist when incremental platen rotation is desired, the bar being formed of at least two pieces hinged together so that the bar may be extended to the length of the pieces or may be doubled, one alongside another, to occupy a lesser length, or the bar being hinged at its mounting so that the bar may be placed into operative position or placed into an inoperative position where it may be stored in a compact relationship with the typewriter.

577 With means to prevent reverse rotation or ensure full increment (e.g., for "backlash" prevention):
This subclass is indented under subclass 545. Subject matter wherein the platen* normally rotates incrementally in a first direction, and wherein significance is attributed to a device that stops the platen from rotating in a direction opposite to said first direction, or wherein significance is attributed to a means for making sure that each step of platen rotation is a complete step.

578 SHEET OR WEB (E.G., RECORD-MEDIUM) FEEDING MECHANISM:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to movement of a record-medium* relative to a typewriter, which relative movement is necessary for typing a print-line* and occurs in a direction generally coinciding with the direction in which line-space* movement occurs, or wherein significance is attributed to structure which facilitates, or contributes to, or enables said record- medium movement.

(1) Note. For a discussion of the difference between line-space movement and record-medium movement, see the definition of line-space in the Glossary, section III, and for a discussion of the difference between a sheet and a web, see the definition of record-medium, also in the Glossary.

(2) Note. This and indented subclasses relate to the feeding of a sheet or web from a supply to the typewriter, or to the movement within the typewriter for line-space or similar purposes, or to the delivery of a sheet or web from the typewriter to a receiver of the sheet or web. To be properly placed as an original patent into this or the indented subclasses, the claimed disclosure of such patent should describe the typewriter by more than its name.

(3) Note. Typewriters of this subclass include such structures as: a stationary sheet table or apron*, a conformation that prevents a sheet having an irregularity or hole thereon from being torn at the hole as the sheet moves through the typewriter, or a typewriter with plural stationary tables or an auxiliary support.

SEE OR SEARCH CLASS:
226, Advancing Material of Indeterminate Length, appropriate subclasses for feeding of web material.

271, Sheet Feeding or Delivering, appropriate subclasses for feeding or delivering of sheet material.

579 Including skew correction responsive to position of sheet or web:

This subclass is indented under subclass 578. Subject matter wherein a piece of record-medium* is intended to be moved in a direction parallel to one of the side edges of the piece, the movement being caused by a record-medium feed means, and wherein the action of said feed means is regulated so that if there is a tendency for the record-medium to move sidewise or other than in the intended direction, the feed means will be adjusted to overcome the tendency, the adjustment being made as a result of a sensing of the tendency toward sidewise movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:

619+, for a means for positioning the side edge of a web.

580 Including forming indicia on record-medium during typing to find next line to be typed:

This subclass is indented under subclass 578. Subject matter wherein significance is attributed to (a) the imprinting or formation of a mark on the record-medium* while a print-line* is being typed thereon, and (b) the use of said mark during a subsequent reinsertion of the record-medium into the typewriter, the mark effecting the stopping of the feed of the reinserted record-medium in a position proper for the imprinting of a new print-line.

(1) Note. In the typewriter of this and indented subclasses, a typist will usually type one print-line of text, remove the record-medium from the typewriter, and then will reinsert the record-medium to continue the typing of one (or more) print-lines. Each occasion for removal and reinsertion of the record-medium will be reason to imprint or form a mark which will subsequently be used to stop the feed of the record-medium when the record-medium has been fed to the position where a new print-line is to be typed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

583.3, for a programmed-control-system* wherein indicia on the record-medium are part of the program to control the feeding of the record-medium.

581 To find last-produced slit or hole or notch in sheet:

This subclass is indented under subclass 580. Subject matter wherein the record-medium* is in sheet form and said mark on the sheet is formed thereon by (a) piercing the sheet without removing material therefrom, or by (b) perforating the sheet through both opposite surfaces thereof, or by (c) cutting out a portion of the edge of the sheet, and wherein any of the marks described is made concurrently with the typing of the print-line* that is to be used as a reference location of a new print-line that the typist wishes to type.

582 Including programmed-control-system for record-medium feed (e.g., on auxiliary record):

This subclass is indented under subclass 578. Subject matter wherein a programmed-control-system* is used for giving instructions to which the typewriter responds in moving a record-medium* in a direction coinciding with the direction in which line-space* movement occurs.

(1) Note. In this subclass the record-medium is in the form of a sheet of determinate length and width.

583 For web record-medium:

This subclass is indented under subclass 582. Subject matter wherein the record-medium* is a piece of material having indeterminate length.

583.1 Program on auxiliary-record tape:

This subclass is indented under subclass 583. Subject matter wherein the instructions are on an elongated, relatively narrow strip of material that is supplementary to the record-medium*.

583.2 Program is indicia on rotatable disc or drum:
This subclass is indented under subclass 583. Subject matter wherein the instructions are markings or openings or projections in or on a platelike or cylindrical member that turns about its own axis.

(1) Note. The markings or indicia may be magnetically or electrically conductive strips applied to the plate or cylinder in a particular pattern, or may be openings arranged to pass light to a photocell in a particular pattern.

583.3 Program is indicia on record-medium:
This subclass is indented under subclass 583. Subject matter wherein the instructions are markings or openings on the record-medium* itself.

SEE OR SEARCH THIS CLASS, SUBCLASS:
580+, for a typewriter wherein markings on the record-medium control feed of the record-medium to the next print-line* to be typed.

583.4 Including plural speed record-medium feed:
This subclass is indented under subclass 583. Subject matter wherein provision is made for moving the record-medium* at one velocity or at a different velocity.

584 Including feed of plural record-media arranged side-by-side (e.g., fed independently of platen):
This subclass is indented under subclass 578. Subject matter wherein movement of at least two record-medium* pieces occurs, and wherein the pieces are placed so that a side edge of one piece is adjacent to an opposite side edge of another piece, or wherein one of the record-medium pieces is moved by structure other than the platen*.

(1) Note. In many typewriters the record-medium material is partially wrapped around a cylindrical platen so it does not lie in a plane, but the arrangement of the sheets in the patents of this and indented subclasses is such that if the record-medium material did lie in a plane, the plural pieces would lie in the same plane to be side by side.

(2) Note. In some typewriters a platen effects line-space* movement of one of the record-medium pieces and a feed-roller* couple that is spaced from the platen along the line of movement effects line-space movement of the other record-medium piece.

585 By divided platen:
This subclass is indented under subclass 584. Subject matter wherein the typewriter is provided with at least two platen* elements for supporting or backing a corresponding number of record-medium* pieces, which platen elements are coaxial one with the other(s).

(1) Note. In this subclass the platens are coaxial but mounted on the same typewriter carriage* so that two pieces or record-medium may be independently moved in the same typewriter. See the patents of subclass 82 above for a typewriter having two or more separate and independently mounted platens.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82, and see (1) Note above.

585.1 With positive clutch for simultaneous rotation of platen sections:
This subclass is indented under subclass 585. Subject matter wherein the plurality of platen* elements are connected one with the other(s) by means that enables one to be disconnected from the other(s) or enables one to be connected to the other(s) whereby all the elements may turn at the same time.

(1) Note. This subclass also provides for a typewriter wherein the plural platen sections may be turned at different rotational speeds.

586 Including feed of tally strip record-medium (e.g., plural tally strips):
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to the movement of a tally strip relative to the typewriter.

(1) Note. The term "tally strip" is a typewriter industry or "art" term for an elongated, relatively narrow piece of record-medium* that is used in a typewriter in addition to the record-medium ordinarily used. The tally strip is fed separately from the ordinary record-medium and is used to record thereon a summation of information. On a tally strip information that can be recorded includes for example, the sum of a column of numbers, a number representing the total items shipped during a particular day, a listing of bills of lading for a particular period of time, words identifying a particular document, and similar subject matter summarizing activities recorded by a typist using the typewriter. Due to the dimensions of a tally strip, it is handled in a typewriter (often an accounting machine) in a manner that is different from the way ordinary record-medium is handled. Disclosures for this and indented subclasses are distinguished in that the handling of one or more tally strips is significant.

SEE OR SEARCH THIS CLASS, SUBCLASS:
43, for a flat-platen* typewriter for typing on a tally strip.

587 And feed of endless transfer-medium:
This subclass is indented under subclass 586. Subject matter wherein a transfer-medium* is also moved relative to the typewriter, which transfer-medium is in the form of a closed-loop band, and is for use with a tally strip.

588 On plural-platen (e.g., divided platen) typewriter:
This subclass is indented under subclass 586. Subject matter wherein the typewriter is provided with at least two platen* elements.

(1) Note. The plural platens may be in the form of a divided platen for side by side record media as in subclass 585 above, or may be separate platens.

SEE OR SEARCH THIS CLASS, SUBCLASS:
585+, and see (1) Note above.

589 With locking or interlocking mechanism (e.g., line lock, etc.):
This subclass is indented under subclass 586. Subject matter wherein a typewriter is provided with locking mechanism or with interlocking mechanism.

(1) Note. The terms "locking" mechanism and "interlocking" mechanism are defined and discussed in the definition and notes of subclass 663 below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
663+, for other locking or interlocking mechanism.

590 Including feed varied for amount of tally strip on spool:
This subclass is indented under subclass 586. Subject matter wherein the tally strip is an elongated tape wound onto a reel and wherein the distance that the tally strip is moved for feeding thereof is dependent upon the diameter of the wound reel of tally strip.

(1) Note. In this subclass the feed of the tally strip is adjusted in accordance with the change in diameter of the tally-strip spool so that the line-space* distances between print-lines* on the tally strip will remain constant.

591 Including tally-strip feed transverse to feed of main record-medium:
This subclass is indented under subclass 586. Subject matter wherein the direction of movement of the tally strip is in a direction that is perpendicular to the direction of movement of the primary-record-medium* in the typewriter.

592 Including feed independent of platen:
This subclass is indented under subclass 586. Subject matter wherein the movement of the tally strip relative to the typewriter is effected by a mechanism other than the platen* of the typewriter.

593 With cutting or spring tensioning of tally strip:
This subclass is indented under subclass 586. Subject matter wherein the typewriter is provided with means for severing a portion of the

tally strip from the supply of tally strip, or wherein the tally strip is tautened during its movement by a yieldable element contacting the tally strip, or wherein the tally strip is wound on a supply spool or a takeup spool and the tally strip is tautened by a yieldable element cooperating with either of said spools.

594 Including structure or mounting or adjustment of tally-strip roll:
This subclass is indented under subclass 586. Subject matter wherein significance is attributed to a wound reel of tally-strip material, or to a support for a wound reel of tally-strip material, or wherein the typewriter is provided with a carriage* that supports a platen*, and wherein the support for the wound reel of tally-strip material is carried by the typewriter or by a typewriter portion other than the carriage, or wherein the support for the wound reel of tally-strip material is provided with means for varying the position of the wound reel relative to the typewriter.

594.1 And roll for transfer-medium:
This subclass is indented under subclass 594. Subject matter wherein the typewriter is also provided with a wound reel of transfer-medium* material and a support for the wound reel of tally-strip material.

595 Including insertion of sheet from front of platen (e.g., for "condensed-billing", via sheet guide, etc.):
This subclass is indented under subclass 578. Subject matter wherein movement of a record-medium* sheet occurs, and wherein a sheet is fed into the typewriter by guiding the leading edge of a sheet directly between the platen* and the print-point* via structure that is positioned between the platen and the typist.

(1) Note. This mode of inserting the sheet is usually for the purpose of facilitating a condensed-billing*-typing operation.

(2) Note. In some typewriters insertion via the front of the platen is facilitated by moving the platen rearwardly to form a larger throat. Subclass 649, which relates to platen movement, should be considered.

SEE OR SEARCH THIS CLASS, SUBCLASS:
515, for insertion of "carbon paper" from front of platen.

596 Including feed responsive to presence of sheet:
This subclass is indented under subclass 595. Subject matter wherein the movement of the record-medium* sheet occurs as a result of inserting the sheet into the typewriter to a predetermined point in the typewriter.

(1) Note. The insertion of the sheet is usually manual, by the typist manually guiding the sheet to the platen*, and the feed of the sheet subsequent to insertion thereof is usually typewriter actuated, by a motorized mechanism that is responsive to a control initiated by the sheet insertion.

597 With subsequent line-spacing independent of platen:
This subclass is indented under subclass 595. Subject matter wherein movement of a record-medium* sheet occurs in a line-space* direction, said movement being caused by mechanism other than the platen* of the typewriter.

598 With digitally selected, typewriter-actuated feed to selected line to be typed (e.g., via "dialing disc", etc.):
This subclass is indented under subclass 595. Subject matter wherein the typewriter is provided with a mechanism that causes movement of the record-medium* sheet for any of a plurality of determinate distances to a determinate position relative to the typewriter, the position being that at which the typist desires to imprint a print-line*, which mechanism includes a movable component (or components) bearing indicia thereon representing said distances, which component is moved by the typist in accordance with the desired distance, the movement of the component effecting the movement of the sheet to the determinate position.

(1) Note. The component is similar to a telephone dial in appearance, and is moved in a similar manner (i.e., by the

typist's finger) to cause the typewriter to move the sheet.

599 Insertion of sheet relative to other record-medium:
This subclass is indented under subclass 595. Subject matter wherein said record-medium* sheet is fed into the typewriter and into relationship with another record-medium.

599.1 With sheet associating attachment (e.g., collating-table, etc.):
This subclass is indented under subclass 599. Subject matter wherein a support fixed to the typewriter is used to bring the record-medium* sheet into relationship with the other record-medium.

(1) Note. A collating-table* is usually the device that facilitates the association of the two record-medium pieces.

600 Via feed throat having gate (e.g. actuated by power, etc.):
This subclass is indented under subclass 595. Subject matter wherein a record-medium* sheet is led into the typewriter by way of a passageway that includes a movable barrier, which barrier may be positioned so that it prevents movement of the sheet or may be positioned so that it enables movement of the sheet into the typewriter.

(1) Note. In this subclass the "gate" is opened and closed by a power-actuated means.

600.1 With platen repositioned for sheet insertion:
This subclass is indented under subclass 600. Subject matter wherein the platen* of the typewriter is movable to a position at which it enables movement of the record-medium* sheet into contact with the platen.

(1) Note. In this subclass the platen together with a feed-roller* effectively form a "gate" in the feed throat that prevents insertion of the record-medium when the platen and feed-roller are engaged. In this condition the leading edge of the record-medium is stopped at the platen. The repositioning of the platen away from the feed-roller effectively opens the gate so that the record-medium can be fully inserted into the throat, usually until the leading edge of the record-medium engages a stop. The throat is then closed by moving the platen back into engagement with the feed-roller, the record-medium being located therebetween. At this time the record medium is properly located relative to the intended print-line* and may be moved in line-space* direction by rotation of the platen and the feed-roller.

600.2 With feed-roller repositioned for sheet insertion:
This subclass is indented under subclass 600. Subject matter wherein the platen* cooperates with a feed-roller* to feed a record-medium* sheet, which feed-roller is movable to a position at which it enables movement of the sheet into proper location relative to the platen.

(1) Note. In this subclass the "gate" is opened by moving the feed-roller away from the platen.

600.3 And sheet feed by additional feed-roller couple:
This subclass is indented under subclass 600.2. Subject matter wherein feed movement of a record-medium* sheet is assisted by a feed-roller*, cooperating with another feed roller, the two cooperating feed-rollers forming a roller couple that is added to the feed-roller of subclass 600.2.

600.4 Coincident to pivoting of sheet guide:
This subclass is indented under subclass 600.2. Subject matter wherein a record-medium* sheet is led into the typewriter by way of a passageway that is movable in an arc, and wherein the movement of the passageway is concurrent with the movement of said feed-roller.

(1) Note. The passageway (i.e., "sheet guide") of this subclass (600.4) may be separate from the passageway (i.e., "feed throat") of subclass 600 or may be an extension of the feed-throat passageway.

601 With laterally movable sheet holder (e.g., having concurrent feed movement):
This subclass is indented under subclass 595. Subject matter wherein a record-medium* sheet is carried or supported for feeding move-

ment by a guide member, which member is movable in a direction substantially perpendicular to the direction of sheet feed, or wherein the guide member is also movable with the sheet in a sheet-feeding direction, such movement occurring at the same time as the perpendicular movement.

602 With sheet ejector:
This subclass is indented under subclass 595. Subject matter wherein the typewriter is also provided with means to remove a record-medium* sheet from the typewriter.

603 Via chute(s) or feed-roller couple (e.g., plural chutes):
This subclass is indented under subclass 595. Subject matter wherein a record-medium* is led into the typewriter by way of a member that extends in the direction of sheet feed and at least partly surrounds the width and thickness dimensions of the sheet, or wherein feed movement of a record-medium sheet is caused by a feed-roller* cooperating with another feed-roller, the two cooperating feed-rollers forming a roller couple.

(1) Note. Two or more of such members may be provided, or each of said members may have its position relative to the typewriter changed in a direction substantially perpendicular to the direction of sheet feed.

(2) Note. The member (i.e., chute) may guide the leading edge of a record-medium* sheet to the rear of the platen* (i.e., a position relative to the platen that is diametrically opposite to the print-point* of the platen).

603.1 Pivotable chute:
This subclass is indented under subclass 603. Subject matter wherein said member is mounted to be oscillatable in an arc.

604 Attachment to typewriter for converting to condensed-billing operation:
This subclass is indented under subclass 595. Subject matter wherein significance is attributed to a structure that may be affixed to or removed from a typewriter, which structure enables the typewriter to be used for condensed-billing* if so desired by a typist.

605 For feeding plural record-media concurrently or selectively:
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to means associated with a typewriter for moving two or more record-medium* pieces, either all of the pieces at the same time or one of the pieces relative to the other(s) in a manner as desired by a typist or other operator.

(1) Note. The record media to be moved may include, for example, plural webs, or plural sheets, or an assemblage of sheet and web material. Transfer-medium* (e.g., "carbon" paper) may also be included within the assemblage of material to be fed, but if significance is attributed to the function* of the transfer-medium, a search for disclosures thereof should include subclasses 497+.

(2) Note. This subclass also includes a device for keeping one of the record-medium pieces separate from the other(s) as the pieces are fed through the typewriter.

SEE OR SEARCH THIS CLASS, SUBCLASS:
497+, for feeding of "manifold sets" and see (1) Note above.

606 Plural webs superimposed and aligned to each other during typing:
This subclass is indented under subclass 605. Subject matter wherein two or more webs or record-medium* are positioned in a surface-to-surface relationship (i.e., a top surface of one web adjacent to a bottom surface of another web) and the webs are further positioned so that their corresponding side edges are located adjacent to one another or so that a particular indicium that occurs along the length dimension of one web is located adjacent to a corresponding indicium that occurs along the length dimension of another web that is in a surface-to-surface relationship therewith.

SEE OR SEARCH THIS CLASS, SUBCLASS:
42, for aligning and feeding of plural webs in a flat-platen* typewriter.

607 Including movement of one record-medium relative to another:
This subclass is indented under subclass 605. Subject matter wherein significance is attributed to the movement of a sheet or web of record-medium* with respect to a second sheet or web of record-medium.

607.1 In lateral direction (e.g., lateral shift of web or sheet carrier):
This subclass is indented under subclass 607. Subject matter wherein the movement of the sheet or web is in a direction substantially perpendicular to the line-space* direction in which feed occurs.

(1) Note. The movement described above is usually for the purpose of aligning one sheet or web with respect to another.

607.2 By insertion of additional record-medium:
This subclass is indented under subclass 607. Subject matter wherein one sheet or web of record-medium* is fed into the typewriter by guiding the leading edge of the sheet or web to a position relative to the platen* of the typewriter that is diametrically opposite to the print-point* of the platen.

607.3 With concurrent feed-roller and line-spacing control:
This subclass is indented under subclass 607. Subject matter wherein the typewriter includes a feed-roller* cooperating with a platen* to feed two record-medium* pieces of material, one of which pieces is intended to remain in the typewriter while the other piece of material is removed, and wherein, to aid in the removal of the other piece, the feed-roller is moved out of cooperation with the platen (i.e., away from the platen) while at the same time the piece remaining in the typewriter is moved a line-space* distance.

(1) Note. The record-medium that is removed could be a bill or financial statement, whereas the record-medium that remains in the typewriter could be a tally strip.

608 With clamp for holding one record-medium stationary:
This subclass is indented under subclass 607. Subject matter wherein the relative movement of one sheet or web of record-medium* with respect to a second sheet or web of record-medium is caused by firmly gripping one of the sheets or webs to restrain its movement while the other sheet or web is moved.

608.1 Selectively engageable feed-rollers or feed-roller brakes:
This subclass is indented under subclass 608. Subject matter wherein the sheet or web record-medium* that is to be restrained is firmly gripped by a member that is normally a feed-roller*, or wherein the feed-roller is prevented from rotating.

(1) Note. Normally a feed-roller cooperates with a platen* so that incremental rotation of the platen causes feed of the record-medium because the feed-roller presses the record-medium against the platen. However, if the platen does not rotate and the feed-roller presses the record-medium against the stationary platen, the record-medium will also remain stationary. In this subclass the record-medium is firmly gripped between the feed-roller and the stationary platen to restrain movement of the record-medium, or the record-medium is firmly gripped between a stationary platen and a stationary feed-roller to restrain movement of the record-medium.

608.2 By auxiliary feed-roller or platen section (e.g., separate feed of sheets):
This subclass is indented under subclass 607. Subject matter wherein the feed movement of one sheet or web of record-medium* is effected with the aid of one feed-roller* and the feed movement of another sheet or web or record-medium is effected with the aid of a second feed-roller, or wherein each feed-roller urges a separate sheet or web record-medium against a separate platen*.

(1) Note. In this subclass one feed-roller may cooperate with a platen and the second feed-roller cooperates with another

feed-roller forming a feed-roller couple, or the separate platens may be coaxial.

608.3 By retrograde movement of one record-medium:
This subclass is indented under subclass 607. Subject matter wherein the relative movement of one sheet or web of record-medium* with respect to a second sheet or web of record-medium is caused by reversing the usual feed direction of one of the sheets or webs in a direction opposite to the usual line-space* direction.

608.4 Including differential movement by separate drive means:
This subclass is indented under subclass 607. Subject matter wherein each of the sheets or webs of record-medium* is moved at a different rate of speed, the movement being effected by different feed means.

609 Mount for plural web rolls:
This subclass is indented under subclass 605. Subject matter wherein the pieces of record-medium* are in the form of web material (i.e., each is a piece of material of indeterminate length), and each web is a spirally convoluted roll, and wherein each spirally convoluted roll is supported on an axis associated with the typewriter.

SEE OR SEARCH THIS CLASS, SUBCLASS:
613+, for a mount for a single web roll.

610 Including sheet-associating attachment (e.g., pin-band-encircling platen):
This subclass is indented under subclass 605. Subject matter wherein significance is attributed to structure which facilitates or contributes to the movement of two or more sheets or webs of record-medium*, which structure includes means whereby one sheet or web is enabled to be positioned with respect to another sheet or web in a particular location relative to the typewriter so that both sheets or webs will be moved into or out of the typewriter as desired by a typist or other operator.

(1) Note. Included herein is a typewriter having a rear collating-table* with clamps or an indicator.

610.1 With table or frame (e.g., collating-table):
This subclass is indented under subclass 610. Subject matter wherein the means for positioning the sheets or webs of record-medium* includes a platform attached to the typewriter and closely adjacent to the platen*, on which platform the sheets or webs are assembled prior to insertion of the assemblage into the typewriter.

(1) Note. The platform is usually a collating-table* and usually includes means to align the front edges of the sheets.

610.2 Front collating-table with sheet-holding means (e.g., clamps):
This subclass is indented under subclass 610.1. Subject matter wherein the platform includes a collating-table* that is located on the typewriter so as to lead the assembled sheets or webs of record-medium* to a position adjacent to the print-point* of the platen*, and also includes means to temporarily secure the assembled sheets or webs to the platform.

610.3 Including pin-holding means:
This subclass is indented under subclass 610.2. Subject matter wherein the securing means includes an element that has a relatively slender, elongated configuration, one end of which engages the sheets or webs of record-medium*.

610.4 Including indicator:
This subclass is indented under subclass 610.2. Subject matter wherein the platform includes a marking or sign to show the positioning of the sheets or webs of record-medium* relative to the platform.

611 For feeding web record-medium:
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to means associated with a typewriter for moving a web of record-medium* relative to the typewriter.

(1) Note. The term “web” is discussed in the definition of “record-medium”, in the Glossary, section III.

(2) Note. The movement of the web in this and indented subclasses is that which causes the web to enter or exit the type-

writer, or to move in a line-space* direction or to move relative to a moving carriage*. Movement of the web (or any record-medium) by and with a moving carriage will be found in subclasses relating to the carriage, subclasses 283+.

(3) Note. The typewriter of this subclass may have a magnetic clutch drive for effecting web feed.

612 Feeding web or sheet in perpendicular directions:
This subclass is indented under subclass 611. Subject matter wherein significance is attributed to the movement of a piece of web material (or of a piece of sheet material) record-medium* in either (a) a line-space* direction, or (b) a character-space* direction, the two directions being transversely related to each other, and the movement in either direction being caused by means other than a moving platen*.

(1) Note. The two directions noted above are referred to in the typewriter art as "x" direction, (i.e., the line-space direction) and "y" direction, (i.e., the character-space direction).

613 With web supply or takeup or mount therefor (e.g., web cartridge, etc.):
This subclass is indented under subclass 611. Subject matter wherein the typewriter is provided with means for holding a source of web material to be typed on, or with means for holding the web material that has been typed on and is being removed from the typing zone of the typewriter.

(1) Note. Either the supply or the makeup can be a convoluted roll of web material, but the subject matter of this and indented subclasses is not limited to a web roll.

SEE OR SEARCH THIS CLASS, SUBCLASS:
609, for a mount for plural web rolls.

613.1 Including insertion of leading edge of web:
This subclass is indented under subclass 613. Subject matter wherein significance is attributed to means for facilitating the entry of a web into the typewriter.

(1) Note. The subject matter of this subclass also provides for the reentry of a web that has been torn or separated from itself, thus causing a new "leading edge" to be formed, and also provides for a "dolly" to facilitate insertion of the web.

613.2 For folded or creased web (e.g., fan-folded web):
This subclass is indented under subclass 613. Subject matter wherein significance is attributed to the web material being doubled over upon itself, or to the web material having a surface configuration that is caused by doubling the material upon itself.

613.3 With web smoother:
This subclass is indented under subclass 613.2. Subject matter wherein significance is attributed to means for flattening a configuration in the web material that was caused by doubling the material upon itself.

613.4 Holder for fan-folded web mounted to move with carriage:
This subclass is indented under subclass 613.2. Subject matter wherein the web of material has an indeterminate length dimension and is folded upon itself transversely of said dimension, the direction of folding alternating along said dimension, and wherein said web is supported by a receptacle or container, is supported on the carriage* or is supported on a portion of the typewriter that partakes of carriage movement.

(1) Note. The web of material may be record-medium* material or may be transfer-medium* material (e.g., "carbon paper") that is handled as record-medium material, and the typing of simultaneous copies is not included in the claimed disclosures.

614 Including web rewind:
This subclass is indented under subclass 613. Subject matter wherein the web of record-medium* that has been typed on and is being removed from the typing zone of the typewriter is convoluted spirally into a roll.

614.1 Connected to platen drive:
This subclass is indented under subclass 614. Subject matter wherein the typewriter is provided with a platen* and means to rotate the platen, and wherein said rotating means also rotates said roll to convolute the removed web onto the roll.

615 Mounted on typewriter having transversely moving carriage:
This subclass is indented under subclass 613. Subject matter wherein the typewriter is provided with a carriage* that is movable in carriage feed and carriage return directions and wherein said web material is supported relative to said carriage.

(1) Note. In this subclass the web material is supported on a mounting that is fixed relative to the typewriter, but the web is guided to follow the movements of the carriage as the carriage moves in carriage feed and carriage return directions.

(2) Note. The term "carriage feed" is defined in subclass 319, and the term "carriage return" is defined in subclass 313.

615.1 Mounted to move with carriage:
This subclass is indented under subclass 615. Subject matter wherein said roll is supported on means that is fixed to the carriage*, whereby the roll partakes of carriage feed and carriage return movements.

615.2 For feeding tape in direction of print-line (i.e., transverse feed):
This subclass is indented under subclass 613. Subject matter wherein the web of record-medium* is in the form of an elongated but relatively narrow strip of material that is mounted to be moved so that its length dimension moves parallel to the direction in which a print-line* is typed.

(1) Note. The width dimension of the strip is usually approximately equal to or only slightly greater than the height of a character* symbol.

616 By pin-feed means (e.g., reciprocating pin, etc.):
This subclass is indented under subclass 611. Subject matter wherein the means for moving a web of record-medium* includes at least one short, slender element that is configured to enter into a hole in the web and is moved in a direction parallel to the line-space* direction to thereby move the web.

(1) Note. In this subclass the pin reciprocates to-and-fro, engaging the web in one of its movements and disengaging from the web in the return movement.

616.1 Including laterally adjustable bands (e.g., tractor feed, etc.):
This subclass is indented under subclass 616. Subject matter wherein the means for moving a web of record-medium* includes at least two closed loop flexible members that move in a direction parallel to the line-space* direction, and each of which members includes one or more of said elements, and wherein the position of either or both of the members relative to the web can be varied in a direction perpendicular to the line-space direction.

(1) Note. In some typewriters of this subclass the position of two of said members relative to the web is varied at the same time, and both bands are moved oppositely in equal distances. This is termed "tractor feed".

616.2 Pin feed on endless band:
This subclass is indented under subclass 616. Subject matter wherein the means for moving a web of record-medium* includes at least one closed loop flexible member that moves in a direction parallel to the line-space* direction, which member includes one or more of said elements.

616.3 Pin wheel (e.g., on platen cylinder):
This subclass is indented under subclass 616. Subject matter wherein the means for moving a web of record-medium* includes a circular

member that rotates so that its periphery moves in a direction parallel to the line-space* direction, which member includes one or more of said elements.

(1) Note. In some typewriters of this subclass the circular member is the platen* or the element(s) is/are associated with the platen to rotate therewith.

617 By friction-feed means (e.g., reciprocating finger or gripper or pinch roller, etc.):
This subclass is indented under subclass 611. Subject matter wherein the means for moving a web of record-medium* includes one or more members that closely contact the surface(s) of the record-medium adjacent thereto and move relative to the typewriter in a direction parallel to the line-space* direction while the surface(s) of the member(s) do not slide relative to the surface(s) of the record-medium, thereby moving the record-medium in said direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
634+, for friction-feed means usually applied to a sheet, and see (1) Note to that subclass.

618 With web tensioning or braking:
This subclass is indented under subclass 611. Subject matter wherein the typewriter is provided with means for moving a web of record-medium* relative to the typewriter and is also provided with means for resisting the movement of the web, whereby the web is tautened or slowed in movement, or wherein the resisting means tends to effect stoppage in the movement of the web of record-medium.

619 Including web guiding or aligning (e.g., laterally, relative to print-line, etc.):
This subclass is indented under subclass 611. Subject matter wherein significance is attributed to means for positioning a web of record-medium* relative to a particular location on the typewriter or leading the web to said location.

(1) Note. The web may be positioned transversely of the direction of line-space* movement or may be positioned with respect to the print-line*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
579, for skew correction of a web.

620 Including web shifting to view print-line:
This subclass is indented under subclass 611. Subject matter wherein significance is attributed to a movement of the web of record-medium* that has been typed on, which movement is for the purpose of enabling a typist to see the character* symbols that have been typed on the print-line*.

621 With web cutter (e.g., tear bar, wire tool, etc.):
This subclass is indented under subclass 611. Subject matter wherein a typewriter is provided with means to sever one portion of a web of record-medium* from another portion of that web.

(1) Note. This subclass includes a cutter that has an edge against which the web is torn.

SEE OR SEARCH CLASS:
83, Cutting, appropriate subclasses for a cutter not associated with a typewriter.

621.1 For longitudinal cut:
This subclass is indented under subclass 621. Subject matter wherein the web is severed along a line that extends along the direction of movement of the web.

621.2 And gauge for tear-off length:
This subclass is indented under subclass 621. Subject matter wherein the severing means comprises an element having a sharp edge, against which edge a web of record-medium* is moved by the user of a typewriter to sever the web, and wherein the typewriter is provided with an indicator that helps the typist to determine the amount of web to be severed from the body of the web.

622 With holder for single sheet (e.g., clip, backing sheet, etc.):
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to the use of a support in addition to a platen*, which support holds one sheet of

record-medium* during typing on the sheet, or wherein significance is attributed to a relatively thin piece of material having length and width dimensions corresponding to the length and width of a sheet of record-medium*, which piece of material lies between the sheet of record-medium and the platen* and holds the record-medium thereto while typing is performed on the sheet of record-medium.

623 Mounted on carriage (e.g., for extra-wide sheet, cylindroidal holder, etc.):
This subclass is indented under subclass 622. Subject matter wherein said support is held by the carriage* of a typewriter.

(1) Note. This subclass is also for a support in the shape of a hollow cylindroidal member that substantially surrounds the platen* or for a support for a sheet of record-medium* that has a width dimension (i.e., a dimension that extends in a direction perpendicular to the line-space* distance), which width dimension is greater than the corresponding length dimension of the platen that backs the record-medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
552, for a "floating" platen capable of feeding such an extra-wide sheet.

624 For feeding sheet from stack or pack holder:
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to means associated with a typewriter for removing one sheet of record-medium* from a pile consisting of a plurality of such sheets regularly arranged in a support or receptacle, or to means for moving such a sheet into the typewriter for typing thereon.

SEE OR SEARCH CLASS:
271, Sheet Feeding or Delivering, subclass 145 and other appropriate subclasses for sheet feeding means not associated with a typewriter.

625 Add delivering to sheet receiver (e.g., by roller couple):
This subclass is indented under subclass 624. Subject matter wherein the typewriter is provided with means to move the sheet of record-medium* that has been typed on out of the typewriter and onto a support or receptacle.

(1) Note. In this subclass a "roller couple" (defined in subclass 636) may be used to move a sheet of record medium into a typewriter for typing thereon or out of a typewriter after typing, thereon.

626 By engaging between flap and body of envelope:
This subclass is indented under subclass 624. Subject matter wherein the record-medium* to be typed on is a folded sheet or a wrapper having a folded portion adjacent to a main portion, and wherein the feed means is an element that moves between the folded portion and the main portion to engage the sheet or wrapper at the fold to thereby move the sheet or wrapper.

SEE OR SEARCH CLASS:
271, Sheet Feeding or Delivering, subclass 2 for an envelope feeder not associated with a typewriter.

627 By pneumatic means:
This subclass is indented under subclass 624. Subject matter wherein the typewriter is provided with means for moving the sheet of record-medium*, which means includes a gaseous fluid medium under subatmospheric or above-atmospheric pressure.

SEE OR SEARCH CLASS:
271, Sheet Feeding or Delivering, subclasses 90+ for a pneumatic sheet feeding means not associated with a typewriter.

628 By reciprocating of oscillating member:
This subclass is indented under subclass 624. Subject matter wherein the typewriter is provided with means for moving the sheet of record-medium*, which means includes an element that moves to-and-fro in a straight line or an arcuate path and engages the sheet for movement thereof.

SEE OR SEARCH CLASS:
271, Sheet Feeding or Delivering, subclasses 44+ for a reciprocating sheet feeding means not associated with a typewriter.

629 By endless-band or rotating (e.g., feed-roller) member:
This subclass is indented under subclass 624. Subject matter wherein the typewriter is provided with means for moving the sheet of record-medium*, which means includes a flexible element orbiting in a closed loop and that engages the sheet for movement thereof, or wherein the typewriter is provided with means for moving the sheet of record medium, which means includes a surface or element that, turns about an axis and that engages the sheet for movement thereof.

SEE OR SEARCH CLASS:
271, Sheet Feeding or Delivering, subclasses 34+ for an endless sheet feeding means not associated with a typewriter; and subclasses 109+ for a rotating sheet feeding means not associated with a typewriter.

630 Including aligning of sheet edge prior to typing:
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to structure for positioning or locating a sheet of record-medium* with respect to some part of a typewriter, which structure is used before any of the character* symbols are imprinted on the sheet and is used by positioning a border of the sheet against the structure.

(1) Note. In most typewriters a sheet is inserted adjacent to the platen* and moved in a line-space* direction. The "leading" edge of the sheet is that edge which is parallel to a print-line* (i.e., perpendicular to the line-space direction) and enters the typewriter first. The "side" edge of the sheet is that edge which is parallel to the line-space direction. The structure of this and indented subclasses ensures that either or both of the edges will be properly aligned with the print-lines so that the typed text will have a pleasing appearance on the page*.

631 Aligner moved to operate concurrently with disengagement of feed means:
This subclass is indented under subclass 630. Subject matter wherein the typewriter is provided with means to move a sheet through the typewriter, which means is shiftable into a first position at which it will not move the sheet or into a second position at which it will move the sheet, wherein the aligning structure is shiftable into a first position at which it will align the sheet or into a second position at which it will not align, but instead permit the sheet to be moved through the typewriter, and wherein the first position of the moving means coincides with the first position of the aligning means whereby the sheet will be aligned when the sheet moving means is not operative.

632 Including leading-edge aligner located past print-point:
This subclass is indented under subclass 630. Subject matter wherein the aligning structure is located in a position at which it will engage and align the leading edge of the sheet after the leading edge has been moved beyond the print-point* of the typewriter.

(1) Note. The term "leading" edge is defined in subclass 630 in (1) Note thereto.

632.1 Adjustable leading-edge aligner:
This subclass is indented under subclass 632. Subject matter wherein the position of the aligning structure may be changed.

633 Side-edge aligner (e.g., adjustable, etc.):
This subclass is indented under subclass 630. Subject matter wherein the aligning structure is located in a position at which it will engage and align the side edge of a sheet.

(1) Note. The term "side" edge is defined in subclass 630 in (1) Note thereto.

633.1 On rear sheet table or apron:
This subclass is indented under subclass 633. Subject matter wherein the aligning structure is mounted on a support for holding a sheet of record-medium* adjacent to a typewriter, which support is positioned adjacent to the back side of the platen*.

633.2 Adjustable aligner (e.g., with lock):
This subclass is indented under subclass 633.1. Subject matter wherein the aligning structure is mounted so as to permit variation in the position of the aligning structure relative to the support.

(1) Note. The aligner may be provided with means for latching the structure to the support to prevent relative movement thereof.

634 Including friction-feed means (e.g., band):
This subclass is indented under subclass 578. Subject matter wherein significance is attributed to movement of a record-medium* in a line-space* direction, which movement is caused by one or more members having a surface or surfaces that closely contact the surface(s) of the record-medium adjacent thereto and move relative to the typewriter in a direction parallel to the line-space direction while the surface(s) of the member(s) do not slide relative to the surface(s) of the record-medium, thereby moving the record-medium in said direction.

(1) Note. In this subclass a flexible feed band cooperates with a platen* to feed a sheet of record-medium lying between the band and the platen.

(2) Note. In amplification of the phrase "in a direction parallel to the line-space direction", the following should be noted. Two members having surfaces that face one another with the record-medium therebetween may comprise a roller couple, wherein each of the feed-roller* elements rotate about a fixed axis in opposite rotational directions, but the two peripheral portions of the roller surfaces that are closest to each other are tangent to substantially the same line and the rotation is such as to move the tangent roller surfaces in the line-space direction. Similar members may move along a line perpendicular to their axes without rotation of the rollers, thus moving the record-medium that is therebetween, and return along the same line but in opposite direction, but during the return movement the rollers rotate so as not to return the record-medium; or, two nonrotatable members may close onto the record-medium and move in the line-space direction, but open out of contact with the record-medium for return of the members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
617+, for friction feed of a web by a reciprocating-gripper couple or a reciprocating-pinch-roller couple.

635 By endless-feed band:
This subclass is indented under subclass 634. Subject matter wherein one of said members is a flexible strip of material having a closed-loop or continuous configuration.

(1) Note. Usually the endless band cooperates with the platen* to feed a sheet lying between the band and platen.

636 By roller couple (e.g. rotatable pinch rollers, etc.):
This subclass is indented under subclass 634. Subject matter wherein at least one member contacts one surface of the record-medium* and at least another member contacts the opposite surface of the record-medium, and wherein each member is a cylinder or a cylindroid rotatable in opposite rotational directions with the record-medium therebetween.

(1) Note. In this subclass a roller couple comprises two counter-rotating rollers with record-medium therebetween, neither of which rollers is a platen*. In the subclasses indented hereunder, the platen is cylindrical or cylindroidal and is rotatable to feed record-medium frictionally engaged thereby, and the other roller is a pressure roller that urges the record-medium into frictional contact with the platen. The roller couple of the indented subclasses thus comprises a platen and a pressure roller cooperating to feed record-medium lying therebetween. The pressure roller is termed a "feed-roller" even though it may not be driven other than by frictional contact with the platen or the record-medium.

636.1 With typewriter-actuated control or feed-roller position:
This subclass is indented under subclass 636. Subject matter wherein a feed-roller* is movable into a first position at which it is in contact with a platen* or is movable into a second position at which it is not in contact with the

platen, and wherein either movement of the feed-roller results from or is concurrent with movement of a mechanism of the typewriter.

(1) Note. The term typewriter-actuated-control* is intended to refer to a control or regulator that is actuated by the typewriter itself or a part thereof that is moved by other than directly manually triggered operation. In most manual typewriters a typist presses various key* elements to effect a particular typing operation. The key-pressed operation is not typewriter actuated, but if that operation in turn effects second operation without further intervention by the typist, the second operation is typewriter actuated.

636.2 Including intermediate drive means (e.g. gears) connecting feed-roller to platen:
This subclass is indented under subclass 636. Subject matter wherein the feed-roller* is caused to rotate by a mechanical transmission that joins the platen* to the feed-roller.

(1) Note. The mechanical transmission may include rotatable toothed wheels, the teeth of which wheels intermesh one with the other(s).

636.3 Including feed-roller having equalizing or pressure-adjusting means:
This subclass is indented under subclass 636. Subject matter wherein a feed-roller* is urged (or a plurality of feed-rollers are urged) toward an associated platen* by a mechanism, which mechanism is regulated so that (a) the force with which the feed-roller is urged (or any of the feed-rollers are urged) may be varied, or (b) the force with which either end of the feed-roller is urged (or either end of any of the feed-rollers is urged) may be varied so as to cause the ends of the feed-roller(s) to be urged with equal force.

(1) Note. In a pressure-adjusting mechanism the purpose is to adjust the spring force by which one feed-roller (or a plurality of feed-rollers) is biased against the platen or another feed-roller to increase or decrease the force over the platen. In a pressure-equalizing mechanism the purpose is to enable the feed-roller (or a plurality of feed-rollers) to be applied with equal force over the platen.

637 Including lower feed-roller(s) (e.g., pressure roller, etc.):
This subclass is indented under subclass 636. Subject matter wherein significance is attributed to one or more feed-roller* elements that are located relative to the associated platen* adjacent to the underneath surface of the platen.

(1) Note. This subclass is for a typewriter wherein the lower-feed-rollers are disposed along a single axis.

637.1 Including concurrent control for disengagement of upper and lower feed-rollers:
This subclass is indented under subclass 637. Subject matter wherein a typewriter is provided with one or more feed-rollers* that are located adjacent to the underneath surface of an associated platen* and is further provided with one or more feed-rollers located adjacent to the topmost surface of said platen, and wherein both the underneath feed-rollers are simultaneously moved toward the platen or simultaneously moved away from the platen.

637.2 Mounted on apron:
This subclass is indented under subclass 637. Subject matter wherein said feed-rollers* are supported adjacent to the platen* on the apron* of the typewriter.

637.3 Mounted on plural roller carriers:
This subclass is indented under subclass 637. Subject matter wherein two or more lower feed-rollers* are provided, and wherein at least one of the feed-rollers is supported on one member, and at least another of the feed-rollers is supported on another member.

637.4 Including plural parallel carrier pivots:
This subclass is indented under subclass 637.3. Subject matter wherein each of said members oscillates about a separate axis, and the axes of oscillation are parallel one to the other(s).

637.5 Including single carrier pivot intermediate front and rear lower feed-rollers:
This subclass is indented under subclass 637.3. Subject matter wherein said one member and said another member each oscillates about the

same axis that is movable with respect to the platen* with which the feed-rollers* are associated, and which axis is located between a feed-roller below and forward of the platen axis and a feed-roller below and rearward of the platen axis.

637.6 Mounted on single carrier having pivot intermediate front and rear lower feed-rollers:
This subclass is indented under subclass 637. Subject matter wherein two or more lower feed-rollers* are provided, at least one feed-roller being supported on a member to be adjacent to an associated platen* in a location below an forward of the platen axis, and at least another feed-roller being supported on the same member to be adjacent to said platen in a location below and rearward of the platen axis, and wherein said member oscillates about an axis that is movable toward and away from the platen and is located between said feed-rollers.

638 Including feed or pressure roller mounted on "paper-finger":
This subclass is indented under subclass 636. Subject matter wherein significance is attributed to a feed-roller* that is supported by a paper-finger* associated with a platen*.

(1) Note. In this subclass the "paper-finger" may be supported on a "paper bail" that is adjacent to the topmost surface of the platen with which the paper bail is associated. The term paper bail is defined in subclass 639.1 below.

639 Including upper feed-roller(s) (e.g., pressure roller, etc.):
This subclass is indented under subclass 636. Subject matter wherein significance is attributed to one or more feed-rollers* that are located relative to the associated platen* adjacent to the topmost surface of the platen.

639.1 Mounted on "paper bail":
This subclass is indented under subclass 639. Subject matter wherein the upper feed-roller(s)* is/are supported by a paper bail which term is discussed and defined in (1) Note below.

(1) Note. The term "paper bail" is the term used by the typewriter industry to refer to a particular structure that holds a paper sheet to a platen*. It usually includes a bar that extends along the length of the platen parallel to the axis thereof. An arm is affixed to each end of the bar, and the other ends of the two arms are pivoted about a common axis parallel to the platen axis, whereby the paper bail is hinged so that its bar overlies the platen. When a record-medium* is fed between the platen and the paper bail, the paper bail holds the record-medium to the platen.

639.2 Disengaged from platen by compound movement of bail (e.g., on double-pivoted mount):
This subclass is indented under subclass 639.1. Subject matter wherein the "paper bail" is normally closely adjacent to the platen* with which it is associated, but where the paper bail is supported so as to be moved out of its closely adjacent position, the movement being such as to combine two or more kinds of motion.

(1) Note. In this subclass the movement usually combines a reciprocatory motion with an oscillatory motion. In some typewriters, the paper bail is supported on an oscillatable member, which member is in turn supported on a second oscillatable member.

640 With cooperating scale:
This subclass is indented under subclass 636. Subject matter wherein the roller couple feed means is associated with a measuring instrument that is calibrated in units corresponding to character-space* distances.

641 Feed-roller structure or brake or spacer therefor:
This subclass is indented under subclass 636. Subject matter wherein significance is attributed to the construction of a feed-roller*, or wherein the feed-roller includes means to retard its rotational movement or includes means to connect the feed-roller with a drive means for the feed-roller, or wherein significance is attributed to a feed-roller construction including a plurality of such feed-rollers on a single axis and means for separating one feed-roller from other feed-rollers along said axis.

642 Including sheet guide (e.g., for sheet insertion, etc.):

This subclass is indented under subclass 578. Subclass matter wherein significance is attributed to structure on or attached to a typewriter, which structure contributes to or facilitates the movement of a sheet of record-medium* through the typewriter in its intended or necessary path for proper typing on the record-medium.

643 Platen-encircling band:

This subclass is indented under subclass 642. Subject matter wherein the structure includes a relatively narrow member that substantially surrounds a platen* and guides the sheet for movement around the platen.

644 Sheet stripper (e.g., for preventing reentry, etc.):

This subclass is indented under subclass 642. Subject matter wherein the structure includes a member that is closely adjacent to a platen* around which a sheet of record-medium* is partially wrapped during typing on the sheet, which member is located relative to the platen in a position to engage the leading edge of the sheet as that leading edge exits from the platen and guide that leading edge out of contact with the platen.

645 Sheet holddown member (e.g., "paper finger", end-of-page holddown, etc.):

This subclass is indented under subclass 642. Subject matter wherein the structure includes a member that is closely adjacent to a platen* around which a sheet of record-medium* is partially wrapped during typing on the sheet, which member engages a surface of the sheet and urges the sheet into contact with the platen, or wherein significance is attributed to the member engaging the surface of a sheet when the end of a page* is adjacent to the member.

645.1 With aperture or notch (e.g., for typing therethrough, etc.):

This subclass is indented under subclass 645. Subject matter wherein the member has a hole therethrough or a portion cut out of an edge thereof, which hole or cut-out portion is located adjacent the print-point* of the typewriter and serves to permit a type-face* to impact the record-medium* through the hole or cutout portion.

645.2 On or with erasing plate or signal or indicator:

This subclass is indented under subclass 645. Subject matter wherein the member is mounted on or is part of a support that is used to support a record-medium* while a record-medium has an eraser applied thereto, or wherein the member is mounted on or is part of a measuring instrument that is calibrated in units corresponding to character-space* distances, or wherein the member is provided with means to alert the typist to a condition of the typewriter.

SEE OR SEARCH THIS CLASS, SUBCLASS:
698, for an erasing table.

645.3 Moveable mounted on movable finger carrier:

This subclass is indented under subclass 645. Subject matter wherein the member is supported by a structure on the typewriter, and wherein the structure may be moved relative to the typewriter and the member may be moved relative to the structure.

(1) Note. In some typewriters of this subclass either the structure or the member may be moved in a path that extends around the platen* with which the structure and the member are associated.

645.4 Pivotally mounted holddown:

This subclass is indented under subclass 645. Subject matter wherein the member is supported for oscillatory or arcuate movement about an axis related to the axis of the platen*.

(1) Note. In some typewriters of this subclass the axis of the member is substantially perpendicular to the axis of the platen.

645.5 Mounted in front of platen axis:

This subclass is indented under subclass 645. Subject matter wherein the member is supported relative to the platen* on a structure that is located adjacent to the platen and between the platen and a typist.

646 Sheet table at delivery side of platen:
This subclass is indented under subclass 642. Subject matter wherein the typewriter includes a platen* around which a sheet of record-medium* is partially wrapped during typing on the sheet, and wherein the support is located relative to the platen in a position to receive the sheet as that sheet exits from the platen after being typed thereon.

647 Movable sheet table or apron (e.g., detachable, extensible, etc.):
This subclass is indented under subclass 642. Subject matter wherein the structure includes a support for holding a sheet of record-medium* adjacent to a typewriter or includes an apron* for holding a sheet adjacent to the platen* of a typewriter, which support or apron is capable of being moved with respect to the platen with which it is associated.

(1) Note. The support may be removed from and replaced on some typewriters without disassembly of other parts of the typewriter, or may be made larger or smaller.

647.1 Pivotable (e.g., fingerlike support):
This subclass is indented under subclass 647. Subject matter wherein the support is capable of being moved in an arcuate or oscillatory path.

(1) Note. The support may comprise one or more elongated (e.g., fingerlike) members.

648 PLATEN OR PLATEN-MOVING MECHANISM:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to the platen* of a typewriter or to means for moving the platen.

(1) Note. The platen moving mechanism or the patents for this portion of the schedule is that platen movement which is not caused by carriage* feed or carriage return and similar carriage movements, or which is not caused by case-shift*, or which is not caused by line-space* mechanism. For such movements, other portions of this schedule are more properly appropriate.

(2) Note. A flat platen of a typewriter is provided for in subclasses 23+ of this schedule. This subclass (648) and the subclasses indented hereunder provided for a cylindrical platen or a platen having a configuration other than significantly flat.

SEE OR SEARCH THIS CLASS, SUBCLASS:
23+, and see (2) Note above.

649 For movement of platen other than for line-spacing:
This subclass is indented under subclass 648. Subject matter wherein a platen* is moved for a purpose other than to effect a line-space* distance.

(1) Note. The movement of the platen is the typewriter of this subclass is often to enable an extra-thick "manifold set" to be inserted between the platen and the apron* associated therewith, or to move the platen so that typing on the record-medium* may be more readily seen by the typist, or to enable adjustments to be made to the record-medium relative to the platen, etc.

650 Cylindrical platen adjustable to facilitate compactness:
This subclass is indented under subclass 649. Subject matter wherein a platen* has extreme ends, one of which ends is movable relative to the other.

(1) Note. The purpose of this adjustment is to enable a platen to be extended or compressed in length, or to enable the turning knob of a platen to be moved along the axis of the platen.

651 Cylindrical platen axially adjustable:
This subclass is indented under subclass 649. Subject matter wherein the platen* or a portion thereof is movable along its own axis of rotation.

652 Platen movement conjointly with type-face movement:
This subclass is indented under subclass 649. Subject matter wherein a platen* is moved toward a print-point* during substantially the same period of time that a type-face* element is moved toward the same print-point.

653 By eccentric mounting for platen:
This subclass is indented under subclass 649. Subject matter wherein the platen* is rotatable about a first axis, and the first axis is rotatable about a second axis on the carriage* and parallel to the first axis.

654 Character-size platen (e.g., anvil, disc, etc.):
This subclass is indented under subclass 648. Subject matter wherein a platen* has length and height dimensions approximating the corresponding width and height dimensions of a character* which is backed by the anvil platen.

655 Mounted on movable carrier:
This subclass is indented under subclass 654. Subject matter wherein the character-size platen* is supported on a mechanism that enables movement of the platen relative to the typewriter.

656 Bar (i.e., line size) platen:
This subclass is indented under subclass 648. Subject matter wherein a platen* has a length dimension equal to or greater than the length of a print-line* on a record-medium*, and has a height dimension approximating the height of a character*.

657 Mounted on cylindrical member:
This subclass is indented under subclass 656. Subject matter wherein a bar platen* has (as defined in subclass 656 above) is included in or on the surface of a cylindrical plate (as defined in subclass 659 below).

658 Semicylindrical platen:
This subclass is indented under subclass 648. Subject matter wherein a platen* is an arcuate plate extending peripherally approximately 180° about an axis and extending along the axis for a dimension approximately equivalent to the width of a record-medium* supported by said platen.

659 Cylindrical platen:
This subclass is indented under subclass 648. Subject matter wherein a platen* has a surface that is generated by a line revolving about an axis parallel to the line.

(1) Note. Although the definition of "cylinder" stated above would produce only a smooth-surfaced "right cylinder", it is not intended that a cylindroidal member having minor surface roughness be barred from any of the subclasses indented hereunder. Such minor surface variations are in fact found in the platen members found in subclasses 661.3+, 661.4, or 662 below.

660 Detachably secured to platen carriage:
This subclass is indented under subclass 659. Subject matter wherein a platen* is mounted on a carriage* for movement with the carriage by structure that enables the platen to be removed from and replaced on the carriage without disassembly of other parts of the typewriter.

660.1 By axially displaceable supporting shaft:
This subclass is indented under subclass 660. Subject matter wherein the structure includes a rod on which the platen* is mounted for rotation of the platen about an axis coincident with the platen and the rod, which rod is movable along its axis for removal of the platen mounted on the rod.

660.2 By pivoted member overlying platen shaft:
This subclass is indented under subclass 660. Subject matter wherein the structure includes a rod on which the platen* is mounted for rotation of the platen about an axis coincident with the platen and the rod, which rod is held to the carriage* by a member that is over the rod and is oscillatable away from the rod for removal of the rod and platen mounted thereon.

660.3 By disengageable platen sectors:
This subclass is indented under subclass 660. Subject matter wherein the platen* is formed of a plurality of segments surrounding the axis of rotation of the platen and wherein the platen is removed from the carriage* by disassembling the segments.

661 With sound-muffling means:
This subclass is indented under subclass 659. Subject matter wherein significance is attributed to a platen* that is provided with means for eliminating or reducing the noise produced by the impact of a type-member* against the surface of the platen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
689+, for other means for muffling the noise produced by a typewriter.

661.1 Including plural layers of varying hardness:
This subclass is indented under subclass 661. Subject matter wherein the platen* is formed of a plurality of thicknesses of material substantially concentrically arranged, and wherein the outermost thickness of material is of a different firmness than the innermost thickness.

SEE OR SEARCH THIS CLASS, SUBCLASS:
662, for a platen having surface portions of varying hardness.

661.2 Including cylinder containing fluent (e.g., fluid, etc.) material:
This subclass is indented under subclass 661. Subject matter wherein the platen* includes a cylindrical tube surrounding a flowable substance.

(1) Note. The material within the cylinder may be, for example, sand, air, liquid, etc., or any other fluent material that yields under impact.

661.3 Including cylindrical sections or rings (e.g., of character-space width):
This subclass is indented under subclass 661. Subject matter wherein the platen* is formed of a plurality of annular elements each having a circular dimension equal to the diameter of the platen cylinder and a width dimension extending axially of the platen.

(1) Note. In some typewriters each of the annular elements may have a width dimension equal to the width of a character*.

661.4 Including a wound member:
This subclass is indented under subclass 661. Subject matter wherein the platen* is formed of a plurality of convolutions of material about the axis of the platen.

(1) Note. The convolutions may be wound spirally (i.e., increasing in diameter as the convolutions are wound around the axis) or helically (i.e., having the same diameter but progressing along the axis as the convolutions are wound around the axis), or be a combination of both forms of convolutions.

662 Including particular surface characteristic (e.g., translucent, pigment yielding, corrugated, of varying hardness, etc.):
This subclass is indented under subclass 659. Subject matter wherein significance is attributed to the properties of the circumferential surface of the platen*.

(1) Note. In this subclass the platen may be translucent, may include a pigment-yielding surface, may be formed with ridges or irregularities, or may be formed with different firmness of material along either its length or periphery, or have other surface characteristics not otherwise provided for.

SEE OR SEARCH THIS CLASS, SUBCLASS:
661.1, for a platen having plural layers of varying hardness.

663 LOCKING OR INTERLOCKING MECHANISM:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to means for preventing an operation from occurring or to means for preventing a normally movable member from moving, or wherein significance is attributed to means for preventing two mutually exclusive operations from occurring simultaneously or to means for preventing two mutually exclusive movable members from moving simultaneously.

(1) Note. The difference between “lock” and “interlock” will best be illustrated by the following examples. In typing a line

of text, the typewriter carriage* reaches a position, determined by a margin-stop*, corresponding to the end of a print-line*. At this position of the carriage, it is desirable to prevent further movement of the carriage, or movement of any of the key* elements, or of the space-bar*. A lock means prevents such movement, but does not prevent a desired carriage return movement. Moreover, a typist may override a carriage lock by pressing a margin*-release key. A lock may also be used to prevent movement of typewriter keys, carriage, or other parts during transport of the typewriter. An interlock is used to prevent movement of one key while another key is pressed, or to prevent movement of a key while the carriage is moving to a tabular position. Stated in different terms, if it is not desirable for two operations or movements to occur at the same time, an interlock is used to prevent one while the other is occurring.

SEE OR SEARCH THIS CLASS, SUBCLASS:

247+, for a case-shift* locking means.
286.3, for a denominational lock in a tabular carriage.
294.2, for a key lock in a tabular carriage.
589, for locking mechanism in a typewriter including tally-strip feeding.

664 For interlocking plural functions or mechanisms:

This subclass is indented under subclass 663. Subject matter wherein significance is attributed to means for preventing two mutually exclusive operations from occurring simultaneously or to means for preventing two mutually exclusive movable members from moving simultaneously.

(1) Note. The significant aspect of this and indented subclasses lies in the phrase "mutually exclusive". As discussed in (1) Note of subclass 663 above, mutually exclusive operations or movements exist where it would not be desirable, or would result in jamming or faulty operation, for one to occur simultaneously with the other.

665 Plural carriage-moving mechanisms (e.g., escapement, tabulation, etc.):

This subclass is indented under subclass 664. Subject matter wherein a typewriter is provided with first means for causing movement of a carriage* in a first mode of operation and also provided with second means for causing the carriage to be moved in a second mode of operation, and wherein the typewriter is also provided with an interlock for preventing one of the means from operating when the other means is operating.

666 Plural keys or key linkages (e.g., for type-face selection, etc.):

This subclass is indented under subclass 664. Subject matter wherein a typewriter is provided with at least two key* elements or at least two sets of lever arrangements for transmitting movement of a key into movement of a type-head*, and wherein the typewriter is also provided with an interlock for preventing one of the keys or lever arrangements from being effective to operate when the other is operating.

(1) Note. In a typewriter of this subclass when a first key has been fully depressed to cause operation of a first type-bar* a second key can be moved to a small extent, but will not cause operation of a second type-bar; or simultaneous full depression of two keys is prevented, thereby preventing simultaneous operation of two type-bars. See subclass 667 for a key-board* lock using an interlock mechanism so that no key may be moved.

(2) Note. Also in this subclass, the interlock means may include: an electrical interlock, an interlock including a plurality of elements that are displaced to prevent intrusion of a second key lever when a first key lever has displaced the elements, a flexible strip that is tautened to prevent a second key lever from being moved when a first key lever has tautened the strip, and a plate that is shifted by one key lever to prevent movement of a second key lever, the mechanisms described being only exemplary of those found herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:
667, and see (1) Note above.

667 Key-board lock using interlock mechanism:
This subclass is indented under subclass 663. Subject matter wherein a typewriter is provided with an interlock mechanism that prevents any movement of any key* element when the lock mechanism is effective.

(1) Note. In this subclass a lock mechanism acts on an interlock mechanism to cause the interlock mechanism to be effective to prevent movement of any of the keys. Stated differently, the lock mechanism controls the interlock mechanism, but the interlock mechanism does not control the lock mechanism.

(2) Note. For a discussion of the difference between a "lock" and an "interlock", see (1) Note of subclass 663.

668 Locking means actuated in response to a condition:
This subclass is indented under subclass 663. Subject matter wherein significance is attributed to means for preventing an operation from occurring or to means for preventing a normally movable member from moving, either means being made effective as a result of a characteristic or state of environment or the occurrence of a predetermined event in a typewriter.

669 Failure of power supply:
This subclass is indented under subclass 668. Subject matter wherein the preventing means is made effective as a result of the absence of external power to a typewriter that requires external power for its operation.

(1) Note. The structure defined locks a mechanism in an electric typewriter, whereby if a key* has been inadvertently pressed while power is not applied thereto, that key will not cause operation when power is reapplied to the typewriter.

670 End-of-page lock (e.g., responsive to preset condition):
This subclass is indented under subclass 668. Subject matter wherein the preventing means is made effective when a predetermined state of the typewriter has been reached, which state corresponds to the termination of a page* of typed text.

(1) Note. The preset condition that causes locking may be the passage of the bottom edge of a sheet past a particular point on the typewriter, the typing of a predetermined number of print-lines* of type, etc., or any condition that actuates a lock so that no further print-lines may be typed on that particular page.

670.1 Responsive to end-of-page sensor:
This subclass is indented under subclass 670. Subject matter wherein a typewriter is provided with means to detect the termination of a page* of typed text, whereby the preventing means is made effective.

(1) Note. The sensor can detect the trailing edge of a sheet of record-medium*, or can detect a hole, mark, or other indicium in either a sheet or a web of record-medium that corresponds to the end of a page.

670.2 Including lock for platen or line-space:
This subclass is indented under subclass 670. Subject matter wherein the preventing means is effective to stop the rotational movement of a platen*, or the movement of a line-space* mechanism.

670.3 By cam groove and follower:
This subclass is indented under subclass 670.2. Subject matter wherein the preventing means includes a channel that is engaged by a member within the channel, which channel is formed as a helical or spiral cam and is moved by incremental rotation of a platen*, whereby the movement of the channel effects movement of the member to effect stopping of the platen.

671 End of maximum typed line:
This subclass is indented under subclass 668. Subject matter wherein the preventing means is made effective when the typewriter carriage*

that is moving in a character-space* direction arrives at a predetermined position relative to the typewriter.

(1) Note. In most typewriters, the position is determined by a margin* regulator (usually the right-hand-margin regulator for English or other European languages), and the locking means prevents further carriage movement as well as movement of any of the character*-key* elements. The locking means may usually be disengaged, however, to permit the typing of several more characters on the same line.

SEE OR SEARCH THIS CLASS, SUBCLASS:
342+, for margin-regulator mechanism.

671.1 Actuated by space-bar:
This subclass is indented under subclass 671. Subject matter wherein the preventing means is made effective by operation of the space-bar* of the typewriter after the typewriter carriage* has arrived at a predetermined position relative to the typewriter.

671.2 Universal-bar lock (e.g., pivoted latch, slidable latch, etc.):
This subclass is indented under subclass 671. Subject matter wherein the preventing means prevents the universal-bar* from moving, whereby typewriter elements that are normally driven by the universal-bar are not driven.

671.3 Actuated by paper-finger:
This subclass is indented under subclass 671.2. Subject matter wherein the universal-bar* is prevented from moving when a paper-finger* that is mounted to move with a platen* on a carriage* engages an element that is stationary relative to the frame of the typewriter.

671.4 Interposed component:
This subclass is indented under subclass 671.2. Subject matter wherein the preventing means includes an element that is movable into either of two positions, in a first position the element is between a fixed portion of a typewriter and the universal-bar* or a member affixed to and movable with the universal-bar, and in a second position the element is not between the portion and the universal-bar, whereby when the element is in the first position the universal-bar is prevented from moving its full movement in a direction to actuate the function* that would be actuated if the element were in its second position.

672 Escapement lock:
This subclass is indented under subclass 671. Subject matter wherein the preventing means prevents the carriage* from moving by holding the carriage escapement to be incapable of carriage feed.

(1) Note. The term “carriage escapement” is defined in the definition of subclass 329.

672.1 Type-bar lock:
This subclass is indented under subclass 671. Subject matter wherein the preventing means includes an element that prevents a type-bar* from moving.

672.2 Key-lever lock (e.g., by hook on key lever):
This subclass is indented under subclass 671. Subject matter wherein the preventing means includes an element that prevents a key* lever from moving.

(1) Note. In some typewriters the key lever is prevented from moving by an element on a typewriter frame that contacts a hooklike member that is mounted on the key lever.

673 Coin-controlled lock (e.g., responsive to print-lines, time, etc.):
This subclass is indented under subclass 668. Subject matter wherein the preventing means is made ineffective by using a token representing money, whereby a typewriter may be made available for hire.

(1) Note. Usually the typewriter of this subclass is operable after the insertion of a coin, and operates for a preset number of print-lines*, or character* symbols, or period of time, or any countable characteristic, after which the typewriter is inoperable.

674 For locking carriage in centered position (e.g., with shipping support):
This subclass is indented under subclass 663. Subject matter wherein significance is attributed to means for preventing a carriage* from moving away from a position that is substantially midway of the total distance that the carriage is capable of moving.

(1) Note. The purpose of a lock of this and indented subclasses is usually to enable transport of a typewriter without damage to its movable parts.

675 And disengaging case-shift lock:
This subclass is indented under subclass 674. Subject matter wherein a typewriter is provided with means to latch its case-shift* mechanism, and said preventing means also unlatches said case-shift mechanism.

676 Key-board security lock (e.g., cover plate, etc.):
This subclass is indented under subclass 663. Subject matter wherein significance is attributed to means for preventing access to the key-board* of a typewriter.

677 For locking selected group(s) of keys:
This subclass is indented under subclass 663. Subject matter wherein significance is attributed to means for preventing movement of a particular plurality of key* elements.

678 For locking key in actuated position (e.g., to remove type-face from ink pad):
This subclass is indented under subclass 663. Subject matter wherein significance is attributed to means for preventing return movement of a particular key* element after that key has been pressed by a typist.

(1) Note. In some typewriters of this subclass the typewriter is provided with a type-member*-inking block that the type-member contacts while in a rest position, and said preventing means locks a key element while the type-member is out of contact with its inking block.

679 MEANS AUXILIARY TO TYPEWRITING FUNCTION:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to structure that is part of a typewriter to aid a typist in using a typewriter, or significance is attributed to a device used in conjunction with a typewriter, which device is connected to, or may be disconnected from, a typewriter, and which device is used by a typist in the operation of a typewriter, but which structure or device does not itself effect the imprint of a character*, a character-space* or word-space*, or a function* of the typewriter.

(1) Note. This subclass and the subclasses indented hereunder provide for structure that facilitates use of a typewriter for typing, which structure is not provided for elsewhere in this class (400). It is emphasized, however, that a patent to be properly placed herein should claim a subcombination that is in a typewriter rather than claim a subcombination by itself.

680 Means for collapsing typewriter or support for record-medium or copy:
This subclass is indented under subclass 679. Subject matter wherein the structure of a typewriter is capable of being compacted to occupy a volume smaller than which it occupies while it is used for typing, or wherein the typewriter is provided with means for holding or retaining a record-medium* or a text from which the typist is reading as the typing is done, and wherein the holding or retaining means is capable of being compacted.

681 By tilting typewriter (e.g., via collapsible legs, etc.):
This subclass is indented under subclass 680. Subject matter wherein the typewriter is made ready for use by pivoting it in one direction, and is compacted by pivoting it in the opposite direction.

(1) Note. In this subclass the entire typewriter is tilted, including the key-board*, the carriage*, the type-member* elements, and all the parts carried by the main frame, or the typewriter is com-

pacted by moving one or more of the leg portions of the typewriter.

682 By moving key-board relative to frame (e.g., into plural operating positions, etc.):
This subclass is indented under subclass 680. Subject matter wherein the typewriter is compacted by movement of the key-board* with respect to the typewriter.

(1) Note. In some typewriters the key-board is hinged to be pivoted or folded over with respect to the body of the typewriter. In other typewriters the key-board is slidable so as to be moved toward and away from the body of the typewriter.

683 By moving carriage relative to frame:
This subclass is indented under subclass 680. Subject matter wherein the typewriter is compacted by movement of the carriage* relative to the typewriter.

(1) Note. In some typewriters the carriage is hinged to be pivoted or folded over with respect to the body of the typewriter.

684 By moving type-bars relative to frame:
This subclass is indented under subclass 680. Subject matter wherein the typewriter is compacted by movement of the set of type-bar* elements within the typewriter.

(1) Note. In many typewriters having this means for compacting the typewriter, the set of type-head* elements are arranged to lie in a curved line while they are in operative position, the curve of the line being such that each type-head travels approximately the same distance from its rest position to the print-point*. For compacting the typewriter, the type-heads are retracted so they all lie in substantially a straight line or common plane.

685 Including typewriter built into carrying case:
This subclass is indented under subclass 680. Subject matter wherein the typewriter is manufactured to be part of an enclosure for the typewriter, which enclosure also includes a handle for lifting and holding the enclosure and the typewriter so enclosed, and wherein the typewriter is compacted by moving component parts thereof to within the enclosure.

(1) Note. This subclass is not for a case into which a typewriter may be temporarily positioned for carrying, but rather for a case that is intended as a permanent part of the typewriter, except that the case may be temporarily dismantled if necessary for repair or maintenance.

686 Buffer (e.g., dashpot, of particular material, etc.) for movable typewriter element:
This subclass is indented under subclass 679. Subject matter wherein a typewriter includes at least a first element that is moved relative to a second element, and wherein significance is attributed to abutment means for controlling the stopping of one element by the other when the elements contact one another at the end of their relative movement toward one another.

687 Having nonimpact movement:
This subclass is indented under subclass 686. Subject matter wherein the elements are caused to contact one another with a motion that is gradual rather than sudden.

(1) Note. The function* of this buffer is to provide for silent operation and to reduce the degree of wear on the parts due to impacting of the elements against each other.

688 Means for increasing typewriter noise:
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to amplification of or addition to the sounds produced by a typewriter during normal use thereof.

689 Means for muffling typewriter noise:
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to elimination or reduction of the sound produced by a typewriter during normal use thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:
661, for a platen* having means for muffling noise produced by a typewriter.

690 By sound-barrier enclosure for typewriter (e.g., by sound-absorbing material):
This subclass is indented under subclass 689. Subject matter wherein a typewriter is provided with means that substantially surrounds all or part of the typewriter mechanism, which means absorbs or baffles the noise normally produced by the typewriter during use thereof, or is provided with means that substantially soaks up the noise normally produced by a typewriter during use thereof.

690.1 With viewing window (e.g., having reflection eliminator):
This subclass is indented under subclass 690. Subject matter wherein the surrounding means has a transparent section therein so that the typist may see any part of the typewriter or the record-medium.

(1) Note. In some typewriters the transparent section is arranged to prevent or reduce the possibility of the typist seeing a false or unwanted image.

690.2 And externally protruding (e.g., key-board, etc.) operating means:
This subclass is indented under subclass 690.1. Subject matter wherein the surrounding means also has an opening therein so that some part of the typewriter that effects proper functioning of the typewriter extends beyond the surrounding means.

(1) Note. The part that extends beyond the enclosure is usually the key-board*.

690.3 With externally protruding operating means:
This subclass is indented under subclass 690. Subject matter wherein the surrounding means has an opening therein so that some part of the typewriter that effects proper functioning of the typewriter extends beyond the surrounding means.

690.4 Including means facilitating opening of enclosure:
This subclass is indented under subclass 690. Subject matter wherein the surrounding means has a section that provides access to the interior of the surrounding means, and wherein significance is attributed to said section or to an element that maintains said section in an access-permitting position or in an access-preventing position.

691 Frame, casing, or support for typewriter:
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to (a) that part of the structure which supports movable portions of the typewriter for movement relative thereto, or (b) that part of the structure which encloses or surrounds the typewriter or a portion thereof, or (c) that part of the structure that sustains the typewriter in typing position.

692 Having means facilitating interchange of parts:
This subclass is indented under subclass 691. Subject matter wherein the typewriter is one in which one or more of the elements thereof may be exchanged one for another, and wherein said frame structure is particularly arranged to effect such exchange of typewriter elements.

693 Housing structure:
This subclass is indented under subclass 691. Subject matter wherein significance is attributed to that part of the structure which encloses or surrounds the typewriter or a portion thereof.

693.1 For ink-ribbon spool (e.g., spool cover, etc.):
This subclass is indented under subclass 693. Subject matter wherein the housing structure at least partially encloses a reel on which a ribbon* of inked* material is wound.

(1) Note. This subclass provides for that portion of the housing that covers the ribbon spool and is movable out of the way to provide access to the ribbon spool. The cover may be pivoted or slidable or removable.

694 Made of particular material (e.g., plastic, etc.):
This subclass is indented under subclass 691. Subject matter wherein significance is attributed to the substance which a typewriter frame, casing, or support is manufactured of.

695 Means for correcting typing errors (e.g., by abrasive eraser, etc.):
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to the removal of a mistake that may have been produced in the typed text and the rectification of the mistake to produce a correctly typed text.

(1) Note. In this subclass an abrasive eraser is usually the correcting means.

696 By laser beam or adhesive-surface ribbon or chemical eradicator:
This subclass is indented under subclass 695. Subject matter wherein the mistake is removed by (a) a laser means, or (b) a specially prepared tape that has on one surface thereof a coating to which the ink* of an imprinted character* will adhere, or (c) a chemical composition which will dissolve or remove the ink of an imprinted character.

(1) Note. The term "laser" is an acronym for Light Amplification by Stimulated Emission of Radiation, and is defined as "a device that utilizes the natural oscillation of atoms for amplifying or generating electromagnetic waves in the visible region of the spectrum".

(2) Note. The adhesive-surface ribbon" [part (b) of the definition] is used by temporarily placing it between the incorrectly imprinted character and the type-face* that was improperly used, and restriking with the same improper type-face, thereby causing the incorrectly imprinted character to adhere to the coating and be stripped from the record-medium*.

697 By overprinting (e.g., with coated material) to cancel error:
This subclass is indented under subclass 695. Subject matter wherein a mistake is removed by using a specially prepared sheet or tape that has on one surface thereof a coating of a color approximating the color of the record-medium*, which coating will adhere to the ink* of an imprinted character*, which sheet or tape is used by temporarily placing it between the incorrectly imprinted character and the type-face* that was improperly used, and restriking with the same improper type-face, thereby causing the incorrectly imprinted character to be covered by the coating.

SEE OR SEARCH THIS CLASS, SUBCLASS:
240.1, for a ribbon* having a field for imprinting character symbols and a field for overprinting erroneous characters.

697.1 With drive for ribbon having coating thereon:
This subclass is indented under subclass 697. Subject matter wherein the specially prepared tape is wound on a spool and the tape is advanced relative to the record-medium*.

(1) Note. In some typewriters of this subclass the correction by overprinting is performed by depressing a single key* element (identified by some term indicating correction), which effects the following actions: (a) the carriage* is backspaced one character-space*, (b) the ribbon*, which has an inking field and a coated field, is shifted so as to move the inking field out of imprinting position and move the coating field into imprint position, and (c) the carriage-feed mechanism is made temporarily ineffective (i.e., "silenced"). Then (a) the improperly used type-face* will be restruck to coat the incorrect character* with pigment that is the color of the record-medium, but the carriage will not be character-spaced, (b) the ribbon will be reshifted so that the inking field will overlie the print-point*, and (c) the correct type-face will be actuated which will imprint the correct character and character-space on the carriage.

698 With erasing table:
This subclass is indented under subclass 695. Subject matter wherein a typewriter is provided with a platform to support the record-medium* while the incorrectly imprinted character* is being rubbed by an abrasive eraser.

SEE OR SEARCH THIS CLASS, SUBCLASS:

645.2, for an erasing plate combined with a sheet holddown member.

699 With receptacle for refuse:

This subclass is indented under subclass 695. Subject matter wherein a typewriter is provided with a container that serves to collect the material that is worn away from the record-medium* while an abrasive eraser is rubbed over the surface of the record-medium.

700 With means for rubbing eraser over surface of record-medium:

This subclass is indented under subclass 695. Subject matter wherein a typewriter is provided with mechanism to move an abrasive eraser relative to the record-medium*.

701 Means for cleaning, or facilitating cleaning of, type-face:

This subclass is indented under subclass 679. Subject matter wherein significance is attributed to the removal of extraneous matter from a type-face*.

(1) Note. This subclass is for a holder for a type-head* or a type-member* which holder supports the type against movement while a cleaner is applied to the type.

702 By coating type-face (e.g., via type-face cleaner, brush, etc.):

This subclass is indented under subclass 701. Subject matter wherein the extraneous matter is removed by rubbing a type-face relative to an element that cleans the type-face.

(1) Note. In this subclass the cleaner is usually a liquid that is usually carried by a ribbon* or sheet which is impacted by the type-face or is a brush having bristles, past which brush the type-face* moves.

702.1 Including means for moving brush:

This subclass is indented under subclass 702. Subject matter wherein the element is a member having bristles, which member is given motion to contact a type-face*, whereby the type-face is cleaned.

703 Indicator means:

This subclass is indented under subclass 679. Subject matter wherein significance is attributed to a device used in conjunction with a typewriter, which device helps the typist to know the skill of the typist, or the condition of the typewriter, or the location of a portion of the typewriter or the record-medium* relative to the typewriter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15, for a justification indicator.

249, for an indicator or ribbon* depletion:

704 For indicating typist's skill or needed adjustment:

This subclass is indented under subclass 703. Subject matter wherein significance is attributed to a mechanism for showing the user's proficiency in manipulating the various mechanisms and functions of the typewriter being used, or wherein the device helps the user to know the condition of the typewriter so that if the typewriter is not operating properly, it can be put into working condition.

(1) Note. One example of the disclosures found herein is a means for determining if the type-head* is properly aligned relative to the print-point* so that if the alignment is incorrect, the type-head can be adjusted on its type-bar*.

705 For indicating position of carriage along print-line:

This subclass is indented under subclass 703. Subject matter wherein the device shows the location of the carriage* relative to the print-line* in the direction that the print-line is formed by successive imprints of character* symbols on a record-medium*.

705.1 Of carriage for type-head-carrier:

This subclass is indented under subclass 705. Subject matter wherein the carriage* is one on which a type-head-carrier* is mounted.

705.2 With word counter:

This subclass is indented under subclass 705. Subject matter wherein the device shows a user of the typewriter how many word* groups have been imprinted on a print-line*.

(1) Note. The word counter usually operates by counting the actuations of the space-bar* as a print-line is formed, and indicating to the typist a signal or display in accordance with such a count. To be properly placed into this subclass, a patent should claim the word counter in combination with other typewriter elements.

SEE OR SEARCH CLASS:
235, Registers, subclass 102 for a word counter, per se, for use in a typewriter.

705.3 By means driven from carriage (e.g., for indicating end of print-line, etc.):
This subclass is indented under subclass 705. Subject matter wherein the device is moved as a result of the carriage* being moved along the print-line*.

(1) Note. Included herein are devices such as a calibrated dial or tape that displays the number of character-space* distances imprinted or remaining to be imprinted, or a device that indicates a selected position of the carriage along its path of movement.

(2) Note. Also in this subclass is an indicator that provides a signal to the typist when, during movement of the carriage, the desired end of the print-line, or the beginning of a new print-line to be typed, is approached.

705.4 Scale for facilitating tabulation:
This subclass is indented under subclass 705. Subject matter wherein the device is a measuring instrument calibrated in units corresponding to character-space* distances, which instrument is used to help a typist set tabular positions for the carriage*.

(1) Note. The term "tabular" is defined in subclass 283 and further discussed in (2) Note thereto.

705.5 Scale for facilitating centering of print-line:
This subclass is indented under subclass 705. Subject matter wherein the device is a measuring instrument calibrated in units corresponding to character-space* distances, which instrument is used to help a typist to determine the midpoint of a print-line* relative to the midpoint of a record-medium*.

(1) Note. The purpose of this device is to aid the typist to center a particular print-line, for example, a heading, a title, etc., relative to the side edges of a page*. Any print-line may be so centered, but usually it is the first-appearing print-line of a page or the first-appearing print-line of a portion of text that requires a heading to distinguish that portion from other portions of the text; therefore, the centered print-line may appear anywhere on a page.

706 For indicating position of line or end-of-page:
This subclass is indented under subclass 703. Subject matter wherein the device shows the location of a record-medium* that has been, or is to be, moved in a line-space* direction, the location being shown relative to an intended print-point* or a previously imprinted print-line* or to an intended last print-line expected to appear on a page*.

706.1 By scale mounted on paper table:
This subclass is indented under subclass 706. Subject matter wherein the device is a measuring instrument calibrated in units corresponding to line-space* distances, which device is located on a support for a record-medium* sheet.

707 By means driven from platen cylinder:
This subclass is indented under subclass 706. Subject matter wherein the device is moved as a result of the platen* being rotated incrementally.

(1) Note. Included in this and indented subclasses are devices such as a calibrated dial, tape, or the like which displays the amount of incremental rotational movements of the platen*, or a device that can be set manually to produce a signal when a predetermined movement of the record-medium* in the line-space* direction has occurred.

707.1 Drive initiated by detector of record-medium:
This subclass is indented under subclass 707. Subject matter wherein the device is provided with means to sense a characteristic of the record-medium* and said means causes connection of the device with the platen* to move the device.

(1) Note. Usually the sensor detects the trailing end of a sheet (i.e., the absence of a sheet that has moved past a particular location). However, this subclass also provides for a sensor to detect an index mark, a hole or notch, an area of magnetically oriented particles on the sheet, or any other indication that a particular point on the sheet has reached a particular location.

707.2 Including relatively movable pointer and scale (e.g., rotatable or rectilinearly movable pointer):
This subclass is indented under subclass 707. Subject matter wherein the device includes two elements, one of which elements is calibrated in units corresponding to line-space* distances, and the other of which elements indicates any of the calibrations on the first-mentioned element, and wherein either of the elements is moved with respect to the other element to indicate line-space distances.

(1) Note. The device (i.e., pointer) may move with a turning or with a straight-line motion.

707.3 Scale rotated by gear drive:
This subclass is indented under subclass 707.2. Subject matter wherein said calibrated element is moved with a turning motion and wherein the turning motion is caused by the incremental rotation of the platen* by way of a drive train that includes gear wheels.

707.4 Rotatable scale coaxial with platen cylinder:
This subclass is indented under subclass 707.2. Subject matter wherein said calibrated element is moved with a turning motion and wherein the element is located on the same axis as that of the platen*.

707.5 With line numbering:
This subclass is indented under subclass 707. Subject matter wherein a typewriter is provided with means for imprinting successive numeral digits representing successive numbers for the successive print-lines that are typed, whereby an indication of the number of lines that have been typed is shown.

708 Including detector of record-medium:
This subclass is indented under subclass 706. Subject matter wherein the device is provided with means to sense a characteristic of the record-medium* and said means causes an indication of the location of the record-medium to be shown to the typist.

(1) Note. Usually the sensor detects the trailing end of a sheet (i.e., the absence of a sheet that has moved past a particular location). However, this subclass also provides for a sensor to detect an index mark, a hole or notch, an area of magnetically oriented particles on the sheet, or any other indication that a particular point on the sheet has reached a particular location.

708.1 Having electrical contacts separated by record-medium:
This subclass is indented under subclass 708. Subject matter wherein said sensing means includes an electrical circuit having two elements intended to touch one another for completion of the circuit, which two elements are maintained in a separated or open position by the record-medium*, whereby when the record-medium is absent from between the elements, the circuit will be closed.

(1) Note. The platen* itself may include one of the elements of the circuit, and the absence of the record-medium may be indicated by a hole in the record-medium at the location of the electrical element.

709 For aligning record-medium with print-point or print-line (e.g., for facilitating correction of error, etc.):
This subclass is indented under subclass 703. Subject matter wherein the device helps a typist to position a record-medium* so that a particular point on the record-medium will be

precisely located with respect to the print-point* at which a type-face* will impact.

(1) Note. A device of this subclass helps the typist to position a particular character* so that it can be overprinted for error correction, or to position the record-medium to start a word or line at the proper point on the record-medium.

709.1 By transparent indicator:
This subclass is indented under subclass 709. Subject matter wherein said device has the capability of transmitting light therethrough, whereby a character* on a record-medium* may be seen through the device.

709.2 For indicating print-line alignment:.
This subclass is indented under subclass 709. Subject matter wherein said device has an extended straight edge thereon, whereby a particular print-line* on the record-medium* will be precisely located with respect to the print-line at which a type-face* will impact

(1) Note. The indicator of this subclass is used when a previously typed sheet is reinserted into the typewriter, and permits a newly typed line to be aligned relative to previously typed lines.

710 Including a page counter:
This subclass is indented under subclass 703. Subject matter wherein said device indicates the number of page* units that have been typed.

711 Including a light:
This subclass is indented under subclass 703. Subject matter wherein a typewriter is provided with means for emitting a visible signal to a typist when a condition of the typewriter has been reached.

712 Including means producing an audible sound (e.g., plural tones, etc.):
This subclass is indented under subclass 703. Subject matter wherein a typewriter is provided with means for emitting a noise that can be heard by a typist when a condition of the typewriter has been reached.

(1) Note. The noise may be emitted in two or more frequencies of sound.

713 Attachment for shielding or screening record-medium or typewriter (e.g., against wind, etc.):
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to a device used to cover a portion of the typewriter or the record-medium* or used to protect a portion of the record-medium.

(1) Note. One of the purposes of the shield or screen is to hide the typed material from curious or prying eyes looking over the typist's shoulder. Another purpose is to protect the typewriter of the record-medium from the effects of air moving in the vicinity of the typewriter.

714 For screening key-board:
This subclass is indented under subclass 713. Subject matter wherein the device covers the key-board* of a typewriter.

(1) Note. The purpose of the cover is usually to prevent the typist from seeing the key-board while learning the “touch” system of typing.

715 Attachment for guiding fingers or hands of typist (e.g., hand rest):
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to a device that separates the key* elements of a key-board* into groups of keys, each group including those keys that are usually pressed by a particular finger of the typist's hands during “touch” typing, or to a device that serves to support the hands or the arms of a typist during the typing operation.

716 Attachment for illuminating or viewing (e.g., prism, etc.):
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to a device that casts light on, or reflects or refracts light from, the record-medium* or a portion of the typewriter.

(1) Note. The purpose of the device is to enable the typist to see those portions of the typewriter, or of the text being typed, that may normally be out of sight. A prism (i.e., an optically transparent body having planar surfaces angularly related

to one another) may be part of the viewing system.

717 Attachment for holding an article (e.g., pencil, eraser, etc.):
This subclass is indented under subclass 679. Subject matter wherein significance is attributed to a device that is used to retain an object within sight or reach of the typist, which object is used by the typist during the typing operation.

(1) Note. The object in this subclass may be a pen or pencil, or correcting paper, or eraser, etc.

718 Copyholder:
This subclass is indented under subclass 717. Subject matter wherein the object retained is a text from which the typist is reading as the typing is done.

718.1 Actuated by typewriter (e.g., to simulate line-spacing, for web copy, etc.):
This subclass is indented under subclass 718. Subject matter wherein the device is provided with structure that is movable to indicate to the typist that portion of the text in the holder that the typist is then reading from and typing, which structure is caused to be moved by a portion of the typewriter.

(1) Note. This subclass provides for a copyholder that moves the text being copied from a relative to a stationary indicator, or for a copyholder wherein a movable indicator moves over a stationary text, but in either event the movement results from actuation of the line-space* lever. Also found in this subclass is a pointer or indicator that is actuated by a carriage-feed mechanism and indicates character* position, and a pointer that is actuated by a carriage-return mechanism to move a pointer in a line-space direction.

718.2 With adjustment of line-spacing:
This subclass is indented under subclass 718.1. Subject matter wherein the text being copied is moved by the structure in line by line fashion, and wherein the distance that the text is moved for each line may be changed.

719 MISCELLANEOUS:
This subclass is indented under the class definition. Subject matter not provided for in the previous subclasses.

(1) Note. A patent for this subclass would include a typewriter or a portion of a typewriter used for a nontyping operation.

CROSS-REFERENCE ART COLLECTIONS

The following subclasses are collections of published disclosures pertaining to various aspects of the typewriter art, which aspects do not form appropriate bases for subclasses in the foregoing classification, (i.e., subclasses superior hereto in the schedule) wherein original copies of patents are placed in the basis of proximate function of the apparatus. These subclasses assist a search based on remote function of the apparatus and may be of further assistance to the searcher, either as a starting point in searching this class or as an indication of further related fields of search inside or outside the class. Thus, there is here provided a second access for retrieval of a limited number of types of disclosures. Disclosures are placed in these subclasses for their value as references and as leads to appropriate main or secondary fields of search, without regard to their original classification or their claimed subject matter. The disclosures found in the following subclass are examples, only, of the indicated subject matter, and in no instance do they represent the entire extent of the prior art.

900 CHEMICAL-SYMBOL CHARACTER:
This subclass is indented under the class definition. Subject matter wherein the typewriter is capable of imprinting a character* that represents a symbol used in chemistry.

901 CONTINUOUSLY ROTATING TYPE-HEAD:
This subclass is indented under the class definition. Subject matter wherein the typewriter is provided with a type-head that includes a type-set-assemblage*, which type-head turns continuously and impacts the record-medium* even as it is turning.

902 STEPPING-MOTOR DRIVE FOR WEB FEED:
This subclass is indented under the class definition. Subject matter wherein the typewriter is provided with an electric motor that turns in

increments and is used to line-space* a piece of web record-medium*.

903 STEPPING-MOTOR DRIVE FOR CARRIAGE FEED:

This subclass is indented under the class definition. Subject matter wherein the typewriter is provided with an electric motor that turns in increments and is used to impart character-space movements to the carriage.

904 SUBSCRIPT OR SUPERSCRIPT CHARACTER:

This subclass is indented under the class definition. Subject matter wherein the typewriter is capable of typing a character* that is located below the usual print-line* or above the usual print-line.

END